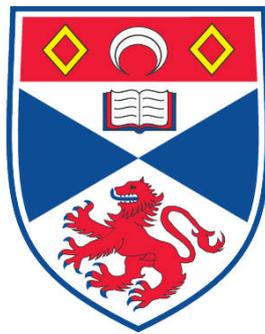


**LOCAL DEVELOPMENT PLANNING AND BATS IN THE UK:  
"AN IMPENETRABLE FOG" ?**

**Keith Cohen**

**A Thesis Submitted for the Degree of MPhil  
at the  
University of St. Andrews**



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**Local development planning and bats in  
the UK:  
“an impenetrable fog” ?**

A thesis submitted for the degree of Master of Philosophy

Keith Cohen

March 2010

School of Biology  
University of St. Andrews

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I was admitted as a research student and as a candidate for the degree of Master of Philosophy in April 2008; the higher study for which this is a record was carried out in the University of St Andrews between 2008 and 2010.

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## Abstract

Despite national and international protection, and the focus of conservation biology research, UK bat populations remain under threat from development. Cumulative impacts from development threaten bat populations with the “death of a thousand cuts”: direct mortality; loss of roost spaces; increasing road traffic and wind turbines killing more bats; disturbance, fragmentation and degradation of habitat may increase mortality by reducing fitness. It is timely to investigate the efficacy of conservation measures targeted at protecting bats in local development planning (“development management”), in particular the process of screening planning applications for potential impacts upon bats, acting in resolution of this Human-Wildlife Conflict.

Examination of published guidance was combined with review of practitioner experience through Local Planning Authority (LPA) development management staff and bat survey consultants, with the aim of determining weaknesses in principles, mechanisms and resources.

Key issues were the lack of political and managerial support, poor enforcement, a lack of expert natural heritage skills, inconsistent interpretation and application of guidelines, and significant gaps in guidance. For one LPA, 22% of sampled planning applications showed a high risk of potential impacts upon bats, yet only 1% had a bat survey undertaken; and 32% of known roost sites had been subject to one or more planning applications in 10 years. Only a few LPAs enjoy excellent access to expert natural heritage skills, biological data and advice from SNCOs.

I present a multi-disciplinary synthesis to derive recommendations for process enhancement including seven good design principles, and seven key resources. The foundation to comprehensive adoption and enforcement is clear nationally consistent political support; thus engendering good practice e.g. all UK development applications should declare how biodiversity issues are addressed; research should address bat population dynamics, and responses to development impacts.

[286]

# 凌迟

Death by a thousand cuts (Lingchi) was a form of execution used in China from roughly 900 CE until its abolition in 1905. The condemned person was killed by using a knife to methodically remove portions of the body over an extended period of time. Lingchi was reserved for crimes viewed as especially severe. To be cut to pieces meant that the body of the victim would not be 'whole' in a spiritual life after death. The punishment worked on three levels: as a form of public humiliation, as a slow and lingering death, and as a punishment after death.<sup>1</sup>

---

<sup>1</sup> [http://en.wikipedia.org/wiki/Slow\\_slicing](http://en.wikipedia.org/wiki/Slow_slicing)

# I Human-Wildlife Conflict in Development Management in the United Kingdom

Conservation biology is an interdisciplinary field, taking biological and ecological observations in combination with economic and social factors to develop theories of landscape-scale natural resource management (Soule 1985; Sutherland 1998; Meffe and Carroll 2006). It has been described as a crisis discipline, where urgent action is often required without a full knowing all the facts and thus mixes art and science (Soule 1985). The concepts of this field apply to the conservation of biodiversity from development pressures across the UK, the more so as socio-economic objectives begin to place value on nature (e.g. MacMillan & Phillip 2007; European Commission 2008), and humans and wildlife compete for space to live. Implementation of biodiversity conservation has largely adopted the use of indicator species, both as “flagships” to raise awareness and attention and as “surrogates” for measuring the wider biological diversity (Caro and O’Doherty 1999; Sarkar and Margules 2002). In 2008, bats were adopted as such a surrogate by the UK government as one of a suite of ‘biodiversity indicators’ (Defra 2008b). The operational effectiveness of such surrogates has been questioned (Landres *et al* 1998; Andelman and Fagan 2000; Cushman *et al* 2010). Few studies have investigated the specific impacts of development management on bats (Gillespie & Rasey 2003; BCT/BMT Cordah 2005; Scott 2007; Aughney 2008b) and none in a UK-wide context. Given the 2010 Biodiversity targets (UK Biodiversity Partnership 2007), it is timely to investigate the efficacy of conservation measures targeted at protecting bats in local development planning, such as the process of screening planning applications for potential impacts upon bats (Table I.1).

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**Table I.1 Five questions were addressed in this study**

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1. What are the procedures in use for biodiversity screening of proposed developments? (Chapter 2);
  2. How do these procedures perform? (Chapter 3);
  3. What do local government staff and specialist bat consultants believe the issues are? (Chapter 4, 5);
  4. Does current practice offer effective protection to bats? (Chapter 6);
  5. How could the process and procedures be improved to progress the conservation of bats at a landscape scale? (Chapter 6).
- 

This chapter presents an introduction to Human-Wildlife Conflict, relates this concept to bats and development in the UK, describes the protection through legislation and the land-use development control process and briefly reviews the impacts upon bats from development.

## I.1 Human-Wildlife Conflict: an increasing global concern

### The nature and scope of Human-Wildlife Conflict

“Human-wildlife conflict occurs when the needs and behavior of wildlife impact negatively on the goals of humans or when the goals of humans negatively impact the needs of wildlife. (Madden 2004)”

From man-eating tigers in Bangladesh to the felling of pristine forests for palm-oil export, the usual stories of Human-Wildlife Conflict (HWC) centre on charismatic tropical species

competing with humans for resources and living space (Distefano *et al* undated; Woodroffe *et al* 2005; Messmer 2000; Brown and Jacobsen 2005; Treves 2007). As populations and standards of living rise, the frequency and severity of HWC is likely to continue increasing around the world (Madden 2004), invoking conservation biology. Varied mechanisms and levels of intervention have developed to address these conflicts, from: conservative non-intervention areas such as International Union for Conservation of Nature (IUCN) Protected Area Categories 1a (Strict Nature Reserve) or 1b (Wilderness) (Dudley 2008), or harvest moratoria for north Atlantic cod (Myers *et al* 1997); to pure exploitation such as affected great auk and dodo or most current world fisheries (Delgado *et al* 2003). Legal protection alone is not sufficient to achieve conservation: the African wild dog has become extinct in most countries where it is protected (Woodroffe *et al* 1997). In between these extremes are the majority of cases, where balancing controls on the competing interests often leave issues only partially resolved, often despite policy or legislative level initiatives (Sutherland 1998). This is the territory which the current study inhabits.

Treves, Wallace and White (2009) reviewed a range of HWC histories, developing a classification of nine intervention methods to mitigate HWC. Mitigation should address both “direct methods” to reduce the severity or frequency of incidents and “indirect methods” that raise people’s tolerance for conflicts with wildlife (Treves 2007; Treves *et al* 2009). Human tolerance of wildlife is often shaped by perceived or actual benefit, such as the US\$255M income from 670,000 hunters of white-tailed deer off-setting the US\$126M of crop-damage caused by >1.2M deer (Woodroffe *et al* 2005). However, similar conflicts of human and wildlife interests occur closer to home, affecting taxa that are often easy to overlook. Bats do not generate any direct financial benefits, despite ecosystem services such as control of pest insects, but they do cost developers through delays, surveys and mitigation.

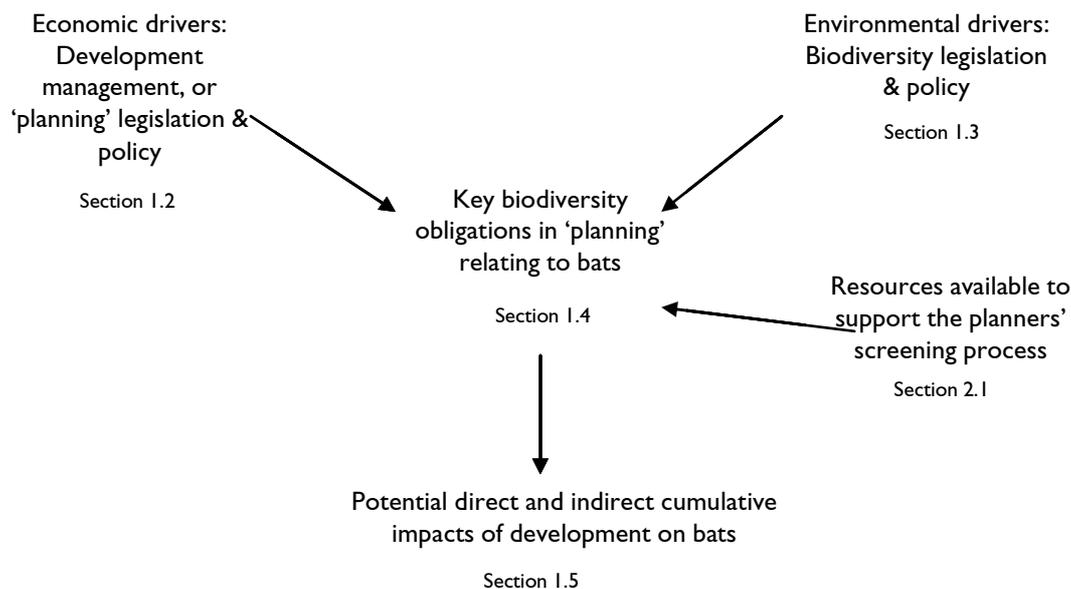
In recent years attention has focussed globally on the increasing landscape-scale conflict between biodiversity and development in urban and rural areas (Crist *et al* 2000). Miller *et al* (2009) attempted to quantify biodiversity conservation in the land-use planning systems in the USA, but found that biodiversity is “a minor consideration when it was considered at all.

Resolving HWC involves finding a socially and politically acceptable balance or trade-off, a consensus agreement which mitigates the losses on both sides. In practice, the adoption and effective application of mitigation mechanisms is critical but often poorly addressed (Woodroffe 2005). The standard project management loop would include (1) the setting of aims, (2) development of delivery mechanisms, (3) adoption and implementation, and (4) monitoring / review / feedback to refine the aims and mechanisms (e.g. BERR 2007).

#### Development Management in the UK as a HWC

There is an example of HWC in the UK, between human economic and social needs for development and the competing ecological needs of bats (represented schematically in Figure 1.1), and resolution depends on stakeholders in the process (Planning Staff, Developers, Consultants and other Advisors) jointly developing and implementing Good Practice. This conflict could also be seen as a ‘biodiversity conflict’ between human parties with differing wildlife management objectives i.e. developers and conservationists (Marshall *et al* 2007).

**Figure I.1 Schematic representation of Human-Wildlife Conflict between bats and development in the UK.**



Land-use development is controlled in the UK through local planning authorities (LPAs) to whom developers must submit applications to seek consent for the proposed activity; and LPAs must make due consideration of potential impacts upon biodiversity. Development activities may require one or more of several types of consent, or may not require any permission. This process is addressed further in Section 1.2. Development that might adversely affect bats can proceed where the infringement of the conservation laws is derogated by licence, as described in Section 1.4.2.

Developers, their advisors and agents often comment that they feel government cares less for people than for wildlife, that wildlife has better protection than they do (this study; pers. obs.), and this grievance leads to prejudice against natural heritage issues, resentment when required to provide surveys or mitigation, or even circumvention of legal obligations. This is exacerbated by the way that wildlife issues are often raised by objectors who hope to derail developments by claiming, for example, the presence of bats; and by the media whipping up a story (Andrews 2009; Anon 2009c; Edwards 2009; Hudson 2009).

Bats are not tigers that might kill, neither are they rabbits that might eat our crops, nor rats that bring disease and damage our homes. Modern society in Britain strives for continual growth through “sustainable development”, to live sustainably and to protect the natural heritage (Defra 1999). Bats and other wildlife have adapted to live in anthropogenic habitats, i.e. our buildings and modified landscape, as well as their natural ancestral habitats and roosts. In our temperate climate the energetic advantage of sharing our buildings in summer encourages thermophilic synanthropy, which makes them particularly vulnerable to developments affecting buildings (e.g. Altringham 2003).

The conflict between development and bats therefore arises from the confluence of these two factors: our need to continually modify and develop their adoptive habitat; and our innate desire to live in harmony with nature. Bats will always find roosting space in buildings and trees which may be subject to development and so the continuation of conflict is inevitable, but we can get better at predicting the incidence and at mitigating the impacts. At

the time of this study in 2008-2009, the UK is still in the early stages of development of good practice tools and procedures to address this conflict.

#### Bat populations under pressure from development

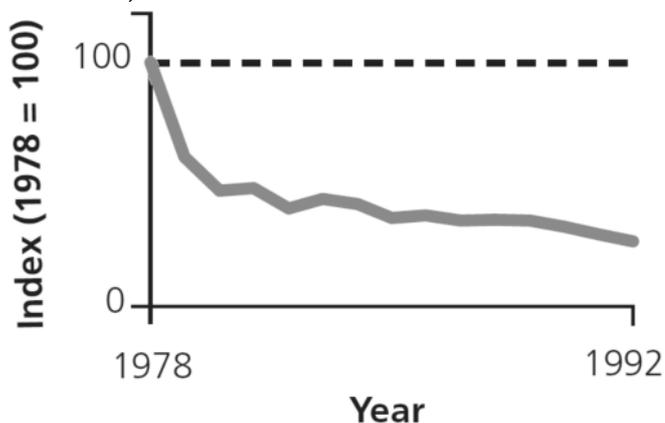
The national bats and habitats survey found associations with some habitats but demonstrated that bats occur throughout the UK (Walsh and Harris 1996a, b). Bats are unusual in their heavy dependence upon shelter in cavities in buildings and other man-made structures (Mitchell-Jones and McLeish 1999; Marnell and Presetnik 2010). Indeed, reviewing the interaction of bats with the construction industry Fenn (2002) observed that:

“it is safest to start from the premise that all buildings and structures are potential roosts” and thus checks for bats should always be required unless otherwise demonstrated.

Historical records show that bat populations in the UK and Europe have undergone severe declines over the 20<sup>th</sup> century (Harris *et al* 1995). Bat populations suffered since the 1950s from widespread roof treatment with organochlorine compounds (until the late 1980s), and reduced insect prey populations accompanying widespread intensification of farming (Stebbing 1988; Morris 1993; Yalden 1999; Racey and Swift 1986).

As k-selected species, normally raising a single young each year, British bats are slow to recover from population declines (Findley 1993; Harris *et al* 1995). Significant declines have been suggested for UK bat populations after 1950 though there are few systematic data (Harris *et al* 1995; Stebbing 1988). The UK Biodiversity long-term trend indicator for bats shows a decline from 1978 to 1992 based on colony emergence counts (Figure 1.2), and this trend continues in the pipistrelle colony count data from 1997 (Defra 2009). Monitoring by volunteers for the National Bat Monitoring Programme (BCT 2008c) provides the data which are used to calculate the short-term indicator which suggests that, since 2000, UK bat populations may have increased by 21% overall (Defra 2009) although the picture varies greatly for different species. Any recent increases in population must be viewed from the perspective of the 20<sup>th</sup> century declines as only a partial recovery (BCT 2009) and consider potential future threats such as climate change or increasing demand for food production (Sutherland *et al* 2008). Roost counts may not effectively represent populations (Kunz 2003).

**Figure 1.2 Long term trend in summer roost emergence counts.** Combined figures for common and soprano pipistrelle, 1978-1992, data from Harris *et al* 1995. (Figure from Defra 2010).



Only for lesser horseshoe bats do both summer and winter survey results show a significant increase (BCT 2009). This increase is largely attributed to milder winters and specific conservation measures enhancing summer and winter roosts of lesser horseshoe bats, and habitat measures (BCT 2009; Defra 2009). Noctule is also believed to be increasing significantly, based on surveys of foraging bats. Greater horseshoe bats show significant increases at monitored summer breeding roosts, but with no comparable increase at known wintering sites (BCT 2009).

Surveys of four species show conflicting results (common pipistrelle, soprano pipistrelle, Daubenton's bat and Natterer's bat) which may show increase<sup>1</sup> or decrease; and for the remaining nine UK species there is insufficient data to show a significant trend (BCT 2009).

Annually, over 0.5 million development proposals are submitted to LPAs for consent (Penfold 2010). Some of these may affect buildings, other structures or trees that may hold bat roosts. All bats and their roosts are strongly protected by both European and UK legislation. LPA staff are trained in the planning laws, but may have no professional training in respect of the natural heritage, yet are often expected to assess the need for survey for a range of protected species, including bats. This project investigated consideration of bats within the UK development management process. Scott (2007) investigated potential gaps in the protection afforded to bats by development control regulations and procedures in England and found gaps in: implementation of LPA consideration of bats for developments outwith scope of the Town and Country Planning Acts (TCPA); or for smaller developments (e.g. householder); inclusion of bats in validation; failure to follow through nature conservation policies into operation of development management; ecological awareness and training of LPA staff; and, access to bat record data.

Some local voluntary bat groups became concerned by the lack of scrutiny in the development control process, and supported their LPA by checking the weekly list of applications submitted for known roosts or high risk sites (Jackson 1999; personal experience with Fife Bat Group). A few local voluntary groups developed guidance to support their LPA staff, such as Durham Bat Group (Jackson 1999) and Staffordshire Bat Group (P.M. Burkinshaw pers. comm.). The first national guidance specific to protecting bats in the development process arrived in 2004, from Natural England (Mitchell-Jones 2004) followed by numerous national and local documents as reviewed in Chapter 2. In 2006, central government guidance (ODPM 2005b) stated for England, "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."

That this process is still failing to achieve 'good practice' standards is underlined by the approach made by John O'Brien, the Head of Planning in the Scottish Executive, in May 2006 seeking to persuade the heads of planning services in all Scottish LPAs to take the issues seriously (Scottish Executive 2006a). The obligation to take full consideration of European Protected Species (EPS) in development plans and development management is made strongly in the latest national Scottish Planning Policy (Scottish Government 2010). The Policy directs LPAs to an ecosystem approach: integrating habitat networks within planning; seeking to prevent further fragmentation; restoring degraded habitats and lost habitat connectivity.

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<sup>1</sup> It is argued for common and soprano pipistrelle that the field survey results, based on encounters with foraging bats, give a more robust measure and on this basis it is believed that populations are increasing; colony emergence counts for both species show a continual downward trend, which seems unlikely to be related to colony mobility as has been suggested (BCT 2009).

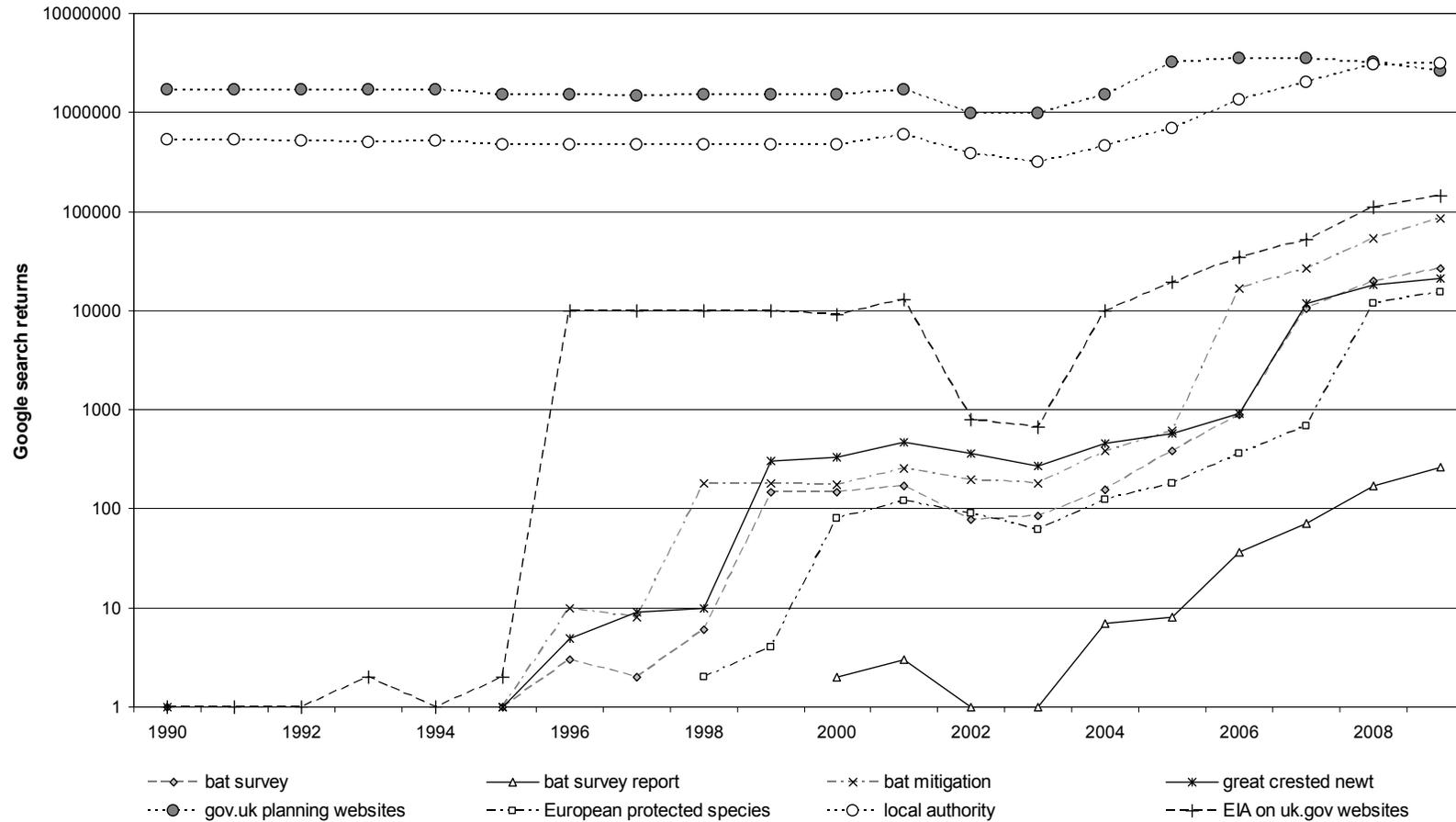
Gearing up staff and skills to assess potential impacts upon protected species and habitats has been protracted, and 10 years after translation of the EC Habitats Directive into UK law only 50% of English LPAs had an ecologist (Gillespie and Rasey 2003). The legal and policy framework supporting this role has been reviewed (Gillespie and Rasey 2003; BCT/BMT Cordah 2005), and initiatives are being progressed to support the safeguarding and enhancing of biodiversity through the development planning process, such as the development of a Biodiversity Toolkit by the Association of Local Government Ecologists (ALGE) (Oxford 2004), and publication of guidance on survey and monitoring methods (e.g. Hill *et al* 2005).

There are signs that increasing consideration is being given to bats and other EPS in the development control process. Edgar *et al* report near exponential growth in great crested newt mitigation projects between 1900 and 2001 (Edgar *et al* 2005). Using the internet search engine google.co.uk<sup>2</sup>, search results from UK websites show similar exponential increasing trends for search terms related to EPS: “bat survey”, “bat survey report” and “great crested newt” (Figure 1.3). Bat detector sales similarly show an increasing trend (Figure 1.4), although this may also include increasing voluntary survey effort.

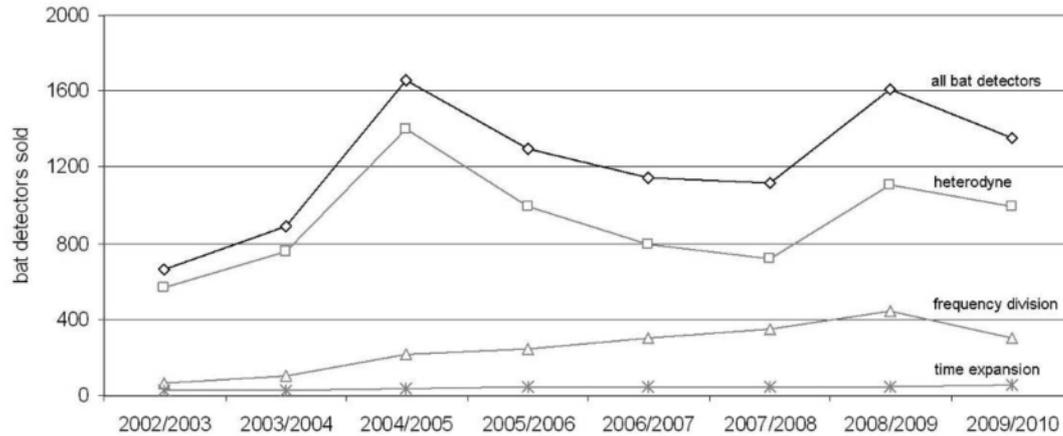
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<sup>2</sup> Using Advanced Search options, with search terms restricted to annual periods, from UK websites only.

**Figure I.3 Exponential increase in internet search returns for development planning and EPS survey terms.** The Advanced Search facility operated by the internet search engine google.co.uk was used to search UK websites for terms related to EPS and development, restricted to annual periods; the results show similar exponential increasing trends for search terms related to EPS: “bat survey”, “bat survey report” and “great crested newt”. By comparison, search of UK websites in annual periods produced stable trends for “local authority” and “.gov.uk”.



**Figure I.4 Trends in sales of bat detectors from Alana Ecology Ltd, financial years 2002 – 2009.** (Data supplied courtesy of Andrew McLeish, Alana Ecology, March 2010). These figures include sales to both professional consultant surveyors undertaking surveys for developments and those undertaking voluntary non-development surveys (e.g. National Bat Monitoring Programme surveys).



The following two sections present an overview of the two key processes in this HWC, the framework of laws, policies and guidance affecting land-use development planning (Section I.2) and the framework affecting biodiversity and European Protected Species (EPS) conservation (Section I.3).

## **1.2 Development Management Legislation and Policy Framework in the UK**

The following is a summary of the main influences in respect of development and European Protected Species, with a specific focus on how within LPAs the risk of impacts is assessed for bats.

This study took place against a shifting legislative and policy landscape, with the process of 'planning reform' under way, and new planning laws enacted in England, Wales and Scotland. A new standard planning application system was introduced in England and Wales, and Scotland is currently developing a similar process. This has been paralleled by the rise in the e-planning system across the UK. A new understanding of the role of development planning has led to the term "Development Management" to encompass the development control function along with wider policy aims such as sustainable development and spatial development plans, aiming at proactive delivery (Killian Pretty Review 2008).

In 2008/09, 'district level' planning authorities in England received 507,000 applications, a decrease of 22 per cent when compared to the previous year (DCLG 2009a), while in Scotland there are over 50,000 applications annually (Scottish Government 2008c).

### **1.2.1 Development Management Legislative and Policy Framework**

#### The Nature of "Development"

Land-use Planning: "Where development should happen, where it should not and how it interacts with its surroundings" (Scottish Government 2010)

The legal definition of "development" covers a wide range of building and engineering work, as well as changes in the way land and buildings are used. Planning law also covers changes to listed buildings and control of advertisements (Scottish Government 2008b). In this study, "development" refers to activities requiring planning consent or building warrant and thus includes demolition works. Planning consent is required for most development, but "permitted development rights" allow for minor works without planning consent where the potential impact upon neighbours or the environment is likely to be small. Development Plans set out the policies used to make decisions about planning applications.

Spatial planning, or land-use planning, has principally been governed by the 'Town and Country Planning' acts, now updated through the recent amending planning reform acts.

#### Domestic Planning Framework:

Sustainable development is a key goal of UK land-use planning policies (DCLG 2009b; ODPM 2005a; National Assembly for Wales 2002; Anon 2001b) guiding development:

e.g. "to conserve and enhance Scotland's distinctive natural and cultural heritage, and continue to safeguard internationally protected sites, habitats and species" is one of 12 main elements of the Scottish spatial strategy to 2030 (Scottish Government 2009d).

Sustainable development is a key commitment (Scottish Executive 2002). Land-use planning affects sustainable development by influencing new buildings and changes in existing buildings and land use. Government aims for sustainable development may focus pressure on properties which have higher risk of use by bats by re-using vacant, derelict and previously-developed buildings, but it also enshrines the protection of areas that are important for wildlife.

What development can take place – and where – is guided by spatial land-use strategies and plans. Strategic plans are drawn up by central, regional and local government and operate within a wider national and international legal framework, to set out such things as how many new houses are needed to meet the future needs of an area, or whether the region needs a new major industrial centre or an airport, as well as considering the environmental implications of future development. Development Management (also called Development Control) ensures planning and other consent applications are processed through the planning system. Development management is now defined as a positive and proactive process (Planning Advisory Service 2010).

### Planning Acts

Within the UK, the main legal framework is provided by the Town and Country Planning Acts (TCPA)<sup>3</sup>. These are implemented by the details in Statutory Instruments, explanatory notes and policy documents. The system has recently been reformed by a series of Acts<sup>4</sup> and further reform Acts are proposed. The national planning frameworks are supported by a plethora of national planning policy guides and circulars<sup>5</sup>.

### Northern Ireland

The main planning law (Planning Service Northern Ireland, undated a) in Northern Ireland is Planning (NI) Order 1991. Applications are made using a single set of forms and guidance, to The Planning Service (part of the Department of the Environment) which consults the local Borough Councils. Householders, General applications, Listed Building Consents etc have separate application forms and guidance, but none specifically mention biodiversity (Planning Service Northern Ireland, undated b).

### Scotland

The TCPA (Scotland) 1997, Chapter 8 Part III, Control Over Development provides the main legislation (Scottish Government 2009c), amended by the Planning etc. (Scotland) Act 2006. These are implemented by the Development Management Regulations 2008<sup>6</sup> and the Hierarchy of Developments Regulations 2009<sup>7</sup> which establishes National, Major and Local levels of development to replace the old major-minor distinction. The National Planning Framework for Scotland (NPFS) and Scottish Planning Policy (SPP) provide the central policy statements on land use planning, over the next 25 years, with policy on both principles and themes which will guide the regional and local development plans and policies. The NPFS and SPP will be incorporated into development plans during the quinquennial review and revision process.

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<sup>3</sup> Town and Country Planning Act 1990 covering England and Wales; The Town and Country Planning Act (Scotland) 1997

<sup>4</sup> The Planning and Compulsory Purchase Act 2004; The Planning Act 2008; Planning etc (Scotland) Act 2006

<sup>5</sup> Planning Advice Notes (PAN) in Scotland, e.g. PAN 60: Planning for Natural Heritage, National Planning Policy Guidance (NPPG), Planning Policy Statement (PPS) e.g. PPS9: Biodiversity and Geological Conservation

<sup>6</sup> Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008

<sup>7</sup> Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009

### England

Following the Killian Review, the Planning Act 2008 updated the TCPA 1990, with the aim of making the planning system simpler and faster. This Act mainly applies only to England. Previous planning legislation for England was consolidated in the TCPA 1990, which had been amended by the Planning and Compensation Act 1991 and the Planning and Compulsory Purchase Act 2004. Three further 1990 Acts address Listed Buildings, Conservation Areas, etc. The planning acts are implemented by the Town and Country Planning (General Permitted Development) Order 1995, and supported by topical policy statements and circulars (e.g. ODPM 2005a, b, c).

### Wales

The main planning laws are as for England, though the 2008 Planning Act makes only very minor change. The Government of Wales Act 2006 created a duty to promote sustainable development. Technical Advice Note 5 guides Nature Conservation and Planning (National Assembly for Wales 1996).

### Building regulations

Alongside the Planning Acts, The Building Regulations 2000 (as amended) applies in England and Wales under the Building Act 1984, affecting the majority of building projects. Similar provision is made in Scotland and in Northern Ireland<sup>8</sup>. Key requirements of these regulations include health and safety, energy conservation, structural standards and access to buildings.

## **1.2.2 Development Management Process**

As described further below (Section 2.1), an application consists of an application form with supporting information, which the LPA must check for completeness before accepting it as 'valid'; applications should be determined within a period dependent on the scale of proposals. Determination involves consideration of all the relevant factors, or material considerations.

### Planning Application Forms, and the 1App form

Prior to October 2007, each LPA produced their own planning application forms, which were inconsistent in the information they asked for from applicants. A new National Standard Planning Application Form (1APP) now applies to England and Wales<sup>9</sup>, which specifically addresses biodiversity (Question 14). The new Scottish standard application form has no standard requirements about biodiversity<sup>10</sup>. All applications in Northern Ireland are submitted on standard forms, and there is no declaration about biodiversity, but plans are required to show presence of protected species and habitats (Planning Service 2004).

### Types of Planning Application

Most applications are made for "full consent", where all the details of the proposed works are presented with the application. Usually, there are separate forms and guidance for householders or developers to make these applications. Where detailed plans are not yet

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<sup>8</sup> The Building (Scotland) Act 2003 / the Building (Scotland) Regulations 2004; the Building Regulations (Northern Ireland) Order 1979 (as amended) / Building Regulations (Northern Ireland) 2000 (as amended).

<sup>9</sup> 1App not applicable to minerals or building control applications; [www.communities.gov.uk/news/corporate/rolloutstandard](http://www.communities.gov.uk/news/corporate/rolloutstandard), [www.planningportal.gov.uk/england/government/lpas/1app/](http://www.planningportal.gov.uk/england/government/lpas/1app/).

<sup>10</sup> Forms and guidance available from: <https://eplanning.scotland.gov.uk/WAM/staticforms.htm?localAuthority=>

available “outline consent” may be sought, sometimes called “permission in principle”; this will be followed later by a detailed application for “reserved matters consent”. For large projects there may be a staged series of detailed applications. Application must be made where changes are proposed in the use of land or buildings (Change of Use), or retrospectively where development works have already been undertaken (certificate of lawfulness).

For all these, the LPA must make assessment of the potential for negative impacts on bats, though it has been recognised that at the outline stage it may not be possible to fully assess the potential, and for “reserved matters” the assessment must be made at each successive application phase. If details are later changed by the applicant, then application for “variation”, or “removal of conditions”, can be made.

Proposals for advertising will often require LPA consent, though the main considerations are safety and amenity. For some works, the LPA does not grant consent, but requires to be notified, e.g. “agricultural prior notice” which covers most operations for the purposes of agriculture on farms.

### Scale of Application

Applications are considered in terms of their scale, as “National”, “Major” or “Local” (previously called “minor”). These distinctions have little direct influence on the risk of potential impacts on bats as even a ‘local’ or ‘minor’ application could have a significant impact, as discussed in Section 2.1. Minor developments include changes of use, household extensions, renovations or alterations, adverts, listed building consents, conservation area consents, and agricultural notifications.

Proposals likely to have a significant effect on the environment require comprehensive environmental assessment under the EU Environmental Impact Assessment (EIA) Directive (European Commission 1997) implemented by UK statutory instruments<sup>11</sup>. The procedure requires an Environmental Statement (ES) describing the likely significant effects of the development on the environment, including bats, and proposed mitigation measures. The ES must cover direct and indirect effects, secondary, cumulative, positive and negative effects of the development (in short, medium and long-term, permanent and temporary), and any measures proposed by way of mitigation (European Commission 1997).

Until recently, EIA requirements were only fully applied for outline planning applications (David Tyldesley and Associates 2005), but European court judgement<sup>12</sup> stated that EIA could also be applied at reserved matters stage (Scottish Executive 2006b). When any planning application is made in outline, the LPA will need to satisfy themselves that they have sufficient information available on the environmental effects of the proposal to enable them to determine whether or not planning permission should be granted in principle.

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<sup>11</sup> There are national statutory instruments, such as the Environmental Impact Assessment (Scotland) Amendment Regulations 2002, and many additional instruments covering specific topics such as EIA for harbour works.

<sup>12</sup> ECJ Case C-508/03, *European Commission v. UK*, - 22 June 2005, the *Crystal Palace Case*. The ECJ ruled that in such cases the UK has failed to correctly transpose Council Directive 85/337/EEC, as amended, because it allows for EIA only before the grant of outline planning permission and precludes such action at the later stage when reserved matters are approved. The ECJ observed that a developer cannot begin to implement a project granted OPP until reserved matters have been approved by the LPA. It has therefore ruled that the two decisions to grant OPP and approve reserved matters constitute multi-stage development consent within the meaning of Article 1(2) of the Directive. Although the ECJ notes that the effects which a project may have on the environment should be identified and assessed before the grant of OPP, it also notes that if those effects are not identifiable until the approval of reserved matters, the assessment should be carried out during the course of that procedure. In effect, it must be possible to allow for EIA at approval of reserved matters. (DCLG 2006b)

Research suggests that about 10% of LPAs may never have undertaken screening to determine whether EIA is required, around 50% of authorities may have only limited experience (Wood and Becker 2005), and that quality of biodiversity assessment in European EIAs is poor (Gontier *et al* 2006).

#### Material considerations

Material Considerations are all the matters that should be taken into account in determining a planning application, and must fairly and reasonably relate to the particular application (e.g. Scottish Government 2009b). There is no defined list of what is a material consideration and the issue has been much debated by planners, lawyers and the courts. Guidance is provided in government circulars, but in general LPAs should consider all the fundamental factors involved in land-use planning including the environmental impacts of the proposal, such as noise, smell, pollution or effect on wildlife. Protected species are material “in the assessment of development proposals”, which may be interpreted to include developments not requiring planning permission (DoE (NI) 1997; Scottish Executive 1999b; Anon 2005b; WAG 2009).

The status of bats for Outline applications has long been debated, though government guidance made it explicit in England (Anon 2005b; Anon 2006a). TAN5 makes clear for Wales that protected species are a material consideration for all planning applications (WAG 2009).

#### Non-planning Consents : e.g. Listed Buildings, and Demolition

The Penfold Review (Penfold 2010) identified 86 non-planning consents requiring additional application covering a range of activities associated with development, and some have potential for impacts on bats, notably those for works on listed buildings or for demolition. Built structures of special architectural or historical interest require listed building consent, even in the case of demolition (see below). An additional application must also be made within Conservation Areas<sup>13</sup>, to demonstrate that the designation has duly been taken into account in the plans.

Demolition of part or all of a built structure is generally not classed as ‘development’ under the General Permitted Development orders and therefore planning permission is not usually needed. However, an application declaring working methods and site restoration must be made to the LPA for a determination as to whether prior approval will be required. The LPA building control service may then issue a “demolition warrant” (Section 81 Notice), under the Building Regulations. In Northern Ireland, demolition generally does not require planning consent, excepting mainly buildings with significant built heritage value (Planning Service 2005). Fure (2003) observed that consideration of impacts of demolition upon bats often appeared only to be met by luck. Protected species surveys are currently rarely asked for under these acts, but the BCT is trying to encourage due consideration (BCT 2007b).

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<sup>13</sup> An area of ‘special architectural or historic interest’ designated by the LPA whose character or appearance is worth protecting or enhancing, judged against local and regional criteria, rather than national importance as is the case with Listed Buildings.

### 1.3 Biodiversity Legislation and Policy Framework in the UK

Law and policy relating to bats and development are briefly considered here to illustrate the confusing cascade of international and national obligations which surround the implementation of bat conservation in development<sup>14</sup>.

#### 1.3.1 International

The impacts of land-use on biodiversity within the UK are controlled and guided by a range of laws and policies all operating under an umbrella of international laws, commitments and guidance. The inheritance of the Brundtland report (WCED 1987) is felt in the commitment to sustainable development:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

In 1992, the Earth Summit international governmental conference built upon the framework of the Brundtland Report to create agreements and conventions on critical issues, including the Convention on Biological Diversity (CBD), an international treaty adopted by the UK in 1993. The CBD aims to:

- conserve biological diversity, with specific targets of loss reduction;
- ensure sustainable use of natural resources; and
- ensure fair exploitation of genetic resources.

To achieve the biodiversity targets of the CBD (UNEP 1992) the UK established the UK Biodiversity Action Plan (UK-BAP) (UK Government 1994) (see section 1.3.3).

The 1979 Convention on the Conservation of Migratory Species of Wild Animals (UNEP CMS Secretariat 2009) (CMS or Bonn Convention) recognises that protection requires coordinated action across the entire migratory range of the species. Species that need or would significantly benefit from international co-operation are listed in Appendix II, including all UK bat species, and those threatened with extinction are listed on Appendix I. Under the CMS, the UK is party to legally binding treaties, such as the Eurobats Agreement<sup>15</sup> which came into force in 1994 (UNEP EUROBATS Secretariat 1994). The Eurobats Agreement aims to protect all 45 species of bats identified in Europe, through legislation, education, conservation measures and international co-operation.

#### 1.3.2 European

In an effort to reduce losses of biodiversity, to preserve the remaining natural resources and indeed to reverse the declining trends, the EU and UK have established a range of laws and conventions that protect species and habitats across their European range: Berne Convention; Habitats Directive; Birds Directive, etc. Key threats to the natural biodiversity of Europe include (Hassan *et al* 2005):

- increased urbanisation and the spread of human infrastructures,
- over-exploitation of natural resources,
- pollution in all its forms,
- the introduction and spread of exotic species.

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<sup>14</sup> Key aspects of law and policy relating to bats and development are summarised here, but for fuller reviews of biodiversity laws, guidance and practice in land-use planning see, e.g.: Tyldesley 1999; BCT/BMT Cordah 2005; Hill *et al* 2005; BCT 2007a; BCT 2010.

<sup>15</sup> Agreement on the Conservation of Populations of European Bats, EUROBATS, 1991.  
[http://www.eurobats.org/documents/agreement\\_text.htm](http://www.eurobats.org/documents/agreement_text.htm)

It is estimated that 42% of mammals, 15% of birds and 52% of freshwater fish across Europe are under threat, and nearly 1000 plant species are at serious risk or on the verge of disappearing completely. The protection of biodiversity is one of the key objectives of the Sixth Environment Action Programme of the EU. Alongside these laws has been established an extensive network of protected sites, the Natura 2000 Network, which includes roost sites and habitat designated for their importance to bats<sup>16</sup>.

Implementation in the UK is through equivalent legislation and guidance in each country<sup>17</sup>. The adoption and implementation of the UK obligations to international treaty rely in part on the capabilities and operation of the LPAs. The 1994 EU Habitats Directive requires that its provisions are reflected in the land-use planning system of all member states, thus LPAs must have due regard for species and habitats protected under the directive. All UK bat species are European protected species (EPS) on Annexe 4, but for the 5 species further protected on Annexe 2 potential impacts upon the habitat must also be considered. For Annexe 4 species there is not usually any such consideration, despite the possibility of significant impacts upon local populations from loss or disturbance of habitat. LPAs thus have responsibility for consideration of the potential impacts upon bat populations, implemented by making a judgement on each planning application as to its likelihood of impacts on bat roosts and habitat prior to consenting development works (e.g. Garland and Markham 2007).

The protection of the Habitats Directive may be derogated to permit activities that would otherwise be illegal, thus the government may issue *licences* provided that three tests are met:

1. there must be a purpose under R.44(2)(e), such as “preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment” [R. 44(2)(e)];
2. “There is no satisfactory alternative” [R. 44(3)(a)]; and
3. “The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range” [R. 44(3)(b)].

This has been reinforced by case law, notably the 1999 Cornwall Case<sup>18</sup>, the Woolley<sup>19</sup> and Morge Cases<sup>20</sup> in 2009, which established that it would be unlawful to grant (any) planning

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<sup>16</sup> Protection Of Nature And Biodiversity <http://europa.eu/scadplus/leg/en/s15006.htm>, accessed 21 Jan 2009

<sup>17</sup> e.g. DCLG (2006b); ODPM (2005c); Natural England (2009a); Scottish Executive (2000); Scottish Executive (2001); Scottish Executive (2006b); Scottish Natural Heritage (2007).

<sup>18</sup> R v Cornwall County Council ex parte Hardy and Gwennap Parish Council CO/4784/99. September 2000: In 1999, Cornwall County Council granted planning permission to extend the largest landfill site in Cornwall. Legal challenge was made in the High Court by EarthRights that the Council had acted illegally in that they had failed to adequately survey the site for protected species. The Council argued that detailed surveys could be dealt with by way of Section 106 Conditions following the grant of permission, however this would have the effect of excluding the public from participating in the process of environmental assessment, (thus defeating the purpose of the Directive and the Regulations). The Court found in favour of the objectors to the development, Mr Justice Harrison concluding that; "...the grant of planning permission in this case was not lawful because the respondent could not rationally conclude that there were no significant nature conservation effects until they had the data from the surveys. They were not in a position to know whether they had the full environmental information required by Regulation 3 before granting planning permission." Judgement para 73.

<sup>19</sup> Standing Advice for Local Authorities - Relevant case law (2010) Natural England, [http://www.naturalengland.org.uk/regions/south\\_east/ourwork/standingadvice/protectedspecies/standingadviceconsultation/case\\_studies.aspx](http://www.naturalengland.org.uk/regions/south_east/ourwork/standingadvice/protectedspecies/standingadviceconsultation/case_studies.aspx),

<sup>20</sup> Simpson, P. (2010) Local Government Lawyer - Dealing with protected species Thursday, 18 November 2010.

[http://localgovernmentlawyer.co.uk/index.php?view=article&catid=63%3Aplanning-articles&id=4995%3Adealing-with-protected-species&format=pdf&option=com\\_content&Itemid=31](http://localgovernmentlawyer.co.uk/index.php?view=article&catid=63%3Aplanning-articles&id=4995%3Adealing-with-protected-species&format=pdf&option=com_content&Itemid=31), accessed 22 November 2010.

permission while reserving consideration of EPS until completion of surveys under Section 106 Conditions (Natural England 2009b). The UK implementation of these European Directives has been the subject of cases at the European Court of Justice (ECJ), where UK laws have been judged to be inadequate in certain areas (European Commission 2005). This resulted in remedial actions, including amendments to relevant acts, and a letter (Scottish Executive 2006a) in May 2006 from John O'Brien, the Head of Planning in the Scottish Executive, to all Scottish LPAs requiring that "planning authorities should fully ascertain whether protected species are on site and what the implications of this might be before considering whether to approve an application or not."

#### Conservation in the wider countryside

Although conservation efforts often focus on sites designated for priority species or habitats, it is axiomatic that most conservation must occur outside these protected areas and that the wider countryside forms the 'front line', even for conservation of priority species and habitats. The need to pursue conservation across the wider countryside is addressed by Regulation 37 of the Habitats Regulations, implementing Article 10 of the Habitats Directive, which encourages use of the land-use planning system to enhance habitat connectivity, and the ecological coherence of European designated sites (Natura 2000) (SNH undated c); and through national planning policy (e.g. NPPG14 para. 48-49): LPAs should "seek to safeguard and enhance the wider natural heritage beyond the confines of designated areas". Garland and Markham (2007) argue that the legal protection of roosts must not neglect conservation of the essential habitat network that supports it - commuting routes, foraging areas, roosts and other features used at other times of year – and that the Habitats Directive may be interpreted to support this.

#### Favourable Conservation Status

The primary objective of the Habitats Directive (Article 2[ii]) is the maintenance or restoration, at favourable conservation status, of key habitats and species, including all bat species (EU 2007). The potential impacts are judged against the concept of Favourable Conservation Status (FCS) (Charalambides 2004; Garland and Markham 2007; EU 2007). Defined in Article 1(i), the conservation status of an EPS will be taken as 'favourable' when:

- population dynamics data indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; and
- its natural range is neither being reduced nor is likely to be reduced for the foreseeable future; and
- sufficient habitat exists for it to maintain populations on a long-term basis.

The concept of FCS remains poorly defined in practice, largely as a result of the knowledge gaps regarding population dynamics: e.g. how large is the population against which a local loss should be judged; what is the response of a local population to losses of individuals; or roosts: or habitat? Understanding of national and local populations is poor (Morris 1993; Harris *et al* 1995). Enthusiasm and funding for research in these areas has been lacking. A proposed study of the effects of exclusion of pipistrelle bats from maternity roosts remained unfunded in the 1980s, and was again unfunded in the 1990s (Racey pers. comm.); this issue was again proposed for study in 2005 (BCT/BMT Cordah) but it has yet to gain funding. Little is known about maternity roost requirements for most species, and less about use of other roosts through the year (Entwistle *et al* 1997; BCT/BMT Cordah 2005; Weller *et al* 2010). Concerns about potential mortality from wind turbines were underpinned by the lack of baseline population data required for prediction or assessment of impacts (BCT 2007c).

Charalambides (2004) highlights the need for research to provide the baseline data which is necessary for the proper assessment of FCS.

### 1.3.3 UK

Legislative provision targets the conservation of species and habitats, complemented by legislation which provides for animal welfare through protection from persecution and harm. As noted in Section 1.3.1, the UK BAP (UK Government 1994) sets targets for conservation of species and habitats, and for the enhancement of biodiversity through the principles of sustainable development. Biodiversity conservation is one of the key pillars of the UK commitment to sustainable development, and within Scotland is further supported within the development management process by key policies of the Scottish Government and SNH (Scottish Executive 1999b: para 80). Established by individual country laws, the “Biodiversity Duty” requires that every public body, including all LPAs, must have regard to the conservation of biodiversity.

In 1995 SNH laid out its overall aim and strategic policy framework for addressing natural heritage in and around settlements (SNH 1995): and identified the key task: “SNH will aim to influence those responsible for planning land use to protect, conserve, restore and enhance the natural heritage”

SNH provides guidance (SNH undated a) on ‘applying the precautionary principle’, meaning that “full scientific proof of a possible adverse environmental impact is not required before action is taken to prevent that impact”, and this principle is incorporated into NPPG14 (“the Government is committed to the application of the precautionary principle where there are good scientific grounds for judging that a development could cause significant irreversible damage to our natural heritage”). Interestingly it stresses that ecology is fraught with uncertainty, and that data will often be limited. A step by step flowchart allows a reasoned decision whether the precautionary principle is appropriate in any case (SNH undated a).

The Scottish Government encouraged LPAs to include delivery of biodiversity conservation into their strategic objectives, to promote it as a core value, and thus ensure implementation within the best value framework (Lenthall 2004).

The UK now gives strong legislative and policy support to planning for biodiversity, though many LPAs still fail to address this area in a holistic or systematic manner (BCT/BMTCordah 2005).

#### The UK Priority Species And Habitats

The UK BAP and cascade of Local BAPs aim to guide conservation through Priority Habitats and Priority Species, and following on from the initial UK BAP programme, the revised list (Maddock 2007) of UK Priority bat species is:

- soprano pipistrelle;
- brown long-eared bat;
- noctule;
- barbastelle;
- Bechstein’s bat;
- lesser horseshoe bat;
- greater horseshoe bat.

To track progress towards the achievement of the CBD and other targets, the UK government includes bats as a biodiversity indicator (see Section 1.4.7) (Defra 2009). Thus, the UK Government has committed under the CBD to achieving population conservation goals in bat conservation for certain species. The UK and Local BAPs are intended to be integrated with policies and practices across all spheres of life, including land use development, to contribute to these conservation goals.

Each country has a duty to establish a list of priority species and habitats to guide LPAs in their consideration of natural heritage issues, in Scotland the “Scottish Biodiversity List”, in England and Wales the “Section 74 list”, replaced priority Species List for England, and by S42 for Wales

As one example, the Scottish Biodiversity List (Scottish Executive 2005) is a list of Species and Habitats considered to be of “principal importance” for the purpose of biodiversity conservation in Scotland, and includes all species of bat found in Scotland<sup>21</sup>. It complements the Scottish Government’s biodiversity strategy (Scottish Executive 2004). Along with the Biodiversity Duty (Scottish Executive 2005) established under the Nature Conservation (Scotland) Act 2007<sup>22</sup>, it establishes a duty on all public bodies to further the conservation of biodiversity. The section 42 list for Wales includes eight species of bat: soprano pipistrelle, common pipistrelle, brown long-eared bat, noctule, barbastelle, greater horseshoe bat, Lesser horseshoe bat, and Bechstein's bat (Wales Biodiversity Partnership 2009); the English list is similar but lacks common pipistrelle (Defra 2008a).

#### Bats as a UK Biodiversity Indicator

In 2001, the European Union set the objective to halt biodiversity decline, with the aim of reaching this target by 2010 (European Commission 2006). In 2002, the Rio Summit<sup>23</sup> also set objectives for reduction of the rate of biodiversity loss at global, regional and national levels, by 2010 (Anon 2002). To track progress towards the achievement of these targets within the UK, the government includes bats as a biodiversity indicator (JNCC 2008).

Bats are considered to be a good indicator of the broad state of wildlife and environmental quality because they are sensitive to pressures experienced by many other taxa (Jones *et al* 2009b). Key pressures on bats also affect many other taxa (e.g. Thomas *et al* 2004; Mayer 2008; Forister *et al* 2010). Furthermore, bats are widespread inhabiting all habitats in the UK, including urban areas, farmland, woodland, and river/lake systems (Walsh and Harris 1996; Vaughan *et al* 1997; Russ and Montgomery 2002; Altringham 2003) and thus provide a monitoring tool for conservation across the wider landscape.

### **1.3.4 Non-statutory guidance**

A bewildering variety of guidance sources relating to bats and development exist (see Appendix A.3 for a sample of over 100). “Planning for Biodiversity”, published by the RTPi, provides key good practice for planning for biodiversity including a systematic five-step approach which, when fully applied, is well designed for conserving biodiversity (Tyldesley 1999). Non-statutory guidance on considering biodiversity and bats in development planning has been provided in various publications and websites, aimed at planners, developers and

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<sup>21</sup> Except Leisler’s bat which was omitted as an oversight (Brigid Primrose, SNH pers. comm.) and should be considered an equal priority species.

<sup>22</sup> The Nature Conservation (Scotland) Act 2004

<sup>23</sup> Inter-governmental United Nations World Summit on Sustainable Development

advisors. These include the Business and Biodiversity Resource Centre website<sup>24</sup>, The Bat Conservation Trust website<sup>25</sup>, leaflets on “Bats and Bridges “, “Bats and Development”, “Bats and the Law” and “Bat Surveys - good practice guidelines” (BCT 2003, 2007a, 2008a,b).

Webley and Kelly investigated guidance for the public sector to support implementation of their Biodiversity Duty in Scotland and Northern Ireland and found a need for specific targeted guidance, and recommended a web-based portal for biodiversity guidance (Webley and Kelly 2009). Amongst their survey respondents, 47% did not feel that sufficient guidance existed for their needs, 59% that guidance is not readily enough available, with 38% identifying a gap in access to biological records.

PPG15: Planning and the Historic Environment (1994) emphasises (para. 1.2) that the function of the planning system is to regulate the development and use of land in the public interest, to protect and enhance the environment in town and country, preserve the built and natural heritage, reconcile the needs for economic growth and to protect the natural and historic environment’ (RTPI 2008). Monitoring and measuring the progress towards the balancing of development with natural heritage has proved difficult (RTPI 2008). The indicators used to explore nature preservation and habitat restoration have been hard to collect, only partly attributable to planning and difficult to interpret (RTPI 2008).

A review by Heriot Watt University (2007) of the role of Scottish Natural Heritage in planning notes that capacity-building of “natural heritage skills” is essential, and suggests provision of training and Awareness-raising for LPAs. It recognises the importance of the role of SNH in the planning system, with their advice highly valued by LPAs. However, recent years have seen a steep increase in the SNH planning caseload, leading to a shift in focus away from “minor and local” to national and major developments. This change relies upon nurturing alternative sources of natural heritage skills in the development planning process, and in the interim this risks significant increase of the cumulative impacts from “local and minor” developments.

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<sup>24</sup> Earthwatch Institute (Europe) (2001) Oxford [<http://www.businessandbiodiversity.org/>]

<sup>25</sup> <http://www.bats.org.uk/>

## **1.4 Potential Impacts upon Bat Populations From Development in the UK**

### **1.4.1 Assessment of impact level**

Borrowing a paradigm from Health and Safety, Risk Assessment considers a “hazard” is anything that may cause harm, takes into account the “likelihood” of such harm and the potential “severity of impact”, and arrives at an assessment of the initial risk, which is then reduced to acceptable residual levels by application of mitigation (HSE 2006).

The hazards to bats from development are many, including direct trauma, chemical poisoning, noise and light pollution, loss or disturbance of traditional roost sites (e.g. Racey 1998). Assessment of the likelihood of these hazards affecting bats must be made case-by-case, as each circumstance will be different; however, it is important to use this experience to develop predictive assessment tools.

The impacts that may ensue are also varied: displacement from roosts, commuting routes or foraging areas; increased energy demand due to disturbance or to displacement from traditional habitats entailing increased travel to new sites; loss of breeding adults as bats are killed during operations; reduced survivorship due to disturbance, etc. Such impacts may be temporary or permanent.

While it is easy to assess as of high impact the death of many bats from trauma during, for example, tree-felling on a development site, it is more problematic to assess the loss of many ‘minor’ roost sites, such as the many small cavities in trees that may show no obvious signs of use by bats but may well each be used by a single torpid bat in winter or spring. This may be more significant than the loss of a few ‘major’ sites. In development management terms, a single house development such as loft conversion could be classed as ‘minor’, but if bats are not surveyed for and no effective mitigation provided this could involve the total destruction of a maternity roost. There is scope for considerable improvement in assessment of significance of impacts of development (Wood 2008).

Potential impacts are briefly reviewed below, ending with consideration of the concept of cumulative impact.

### **1.4.2 Direct Impacts**

#### Roost Loss

Loss of roosting spaces has been identified as a key threat to bats in Britain (e.g. Morris 1993; Harris *et al* 1995; Entwistle *et al* 1997; Stebbings 1988; Hutson *et al* 2001; Altringham 2003; BCT/BMT Cordah 2005; Mitchell-Jones *et al* 2007) and Europe (Marnell and Presetnik 2010). Bats are long-lived, slow-breeding, insectivorous mammals that form colonies in summer and often use buildings or other man-made structures for their places of shelter (roosts). Roosts may hold from 1 bat to 1000s of bats, and may range from a tiny crevice with no visible sign of use to an entire attic with the bats clearly visible, and large amounts of accumulated droppings. Many roosts are cryptic, the signs slight and only discernible after careful inspection by an experienced surveyor, and yet bats show strong philopatry (Kerth 2008). Specialist equipment may be required to confirm the species present.

Maternity roosts are easier to locate and have obvious significance to population conservation. But most roosts are infrequently used, by small numbers of bats and so may be

easy to overlook. Such non-maternity roosts maybe of equal or more importance but get little attention (BCT/BMT Cordah 2005; Knight and Jones 2009; Weller *et al* 2009; personal observations). In considering the conservation of the big brown bat the need to adequately protect a range of different roosts has been noted (Agosta 2002). The Bat Mitigation Guidelines (Mitchell-Jones 2004) recommended the principle of no net loss of available roost sites, but this is not upheld in practice.

Bridges, especially old stone bridges, offer significant numbers of roosts, though often used by smaller numbers of bats, which are vulnerable to loss during maintenance and upgrading works (e.g. Shiel 1999; Billington and Norman 1997; BCT 2003; Keeley 2007; Aughney 2008a). European Directive 96/53/EC allowed for 40-tonne lorries (e.g. Butcher 2009), and much re-building and re-grouting work was undertaken which may have resulted in widespread mortality and certainly denied the use of many roost sites. Modern concrete bridges can also house bats, and sometimes contain very large roosts of high conservation importance (Davis and Cockrum 1963; Keeley and Tuttle 1999; Ferrara and Leberg 2005; Celuch and Ševčík 2008).

Although bats are widespread and cosmopolitan, their roosts are nonetheless rather cryptic, and many householders live with bats for many years without realising it (anecdotal reports from bat-workers; e.g. Pritchard and Murphy 1986). Blanket studies of buildings in an area show that up to 33% are used by bats for roosting of some kind (Pritchard and Murphy 1986). Most known roosts are in occupied dwellings, and this has been linked to the increased temperatures available, and to the varied range of microclimate conditions within the available spaces. With energy needs varying through the year, bats may select different roost sites during pregnancy, lactation, and for torpor or hibernation; details of roost preferences for British bats have been investigated and reviewed (e.g. Entwistle *et al* 1997; Jenkins *et al* 1998; Racey 1998; Altringham 2003; Mitchell-Jones 2004; BCT/BMT Cordah 2005; BCT 2007a; Jones *et al* 2009a; Smith and Racey 2009; Marnell and Presetnik 2010). It is critical to the fulfilment of the legal obligation of maintenance of bat populations that each roost is viewed in context as part of a network of roosts set within commuting and roosting habitat (Altringham 2003; Smith and Racey 2005; Garland and Markham 2007). Although construction materials in buildings vary widely, both with local geology and with local vernacular styles, each will typically offer diverse roost conditions. However, building characteristics such as type of roof material, or large and complex roof voids, have seldom been closely correlated with presence of certain species (e.g. Entwistle *et al* 1997; Jenkins *et al* 1998).

The loss or alteration of underground hibernation sites may be critical, as these are scarce in the landscape and “even quite small changes to site topography can affect use of a site” (Mitchell-Jones *et al* 2007). Such sites may be nationally important for bat populations (Glover and Altringham 2008).

#### Failed or Inadequate Mitigation for Roost Loss

When roosts are destroyed by developments, replacement roost spaces are required as mitigation. Such new roosts may be integral to the building (e.g. small boxes built into the wall or roof<sup>26</sup>, or dedicated loft space), or externally fitted (e.g. bat boxes on an outside wall) or even separated (a purpose-built “bat house”) (e.g. BCT 2008d; Tuttle and Hensley 2005). There is great variation in efficacy of the mitigation methods used and no guarantee of

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<sup>26</sup> e.g. see [www.schwegler-nature.com](http://www.schwegler-nature.com); <http://www.norfolk-bat-group.org.uk/norf.html>; <http://www.ibstock.com/pdfs/ideas-into-action/ideas-into-action-bats.pdf>; <http://www.forticrete.co.uk/news/4/53/new-innovations-in-cast-stone.html>.

advantage to bats (Freer *et al* 1998; Swift 2004; BCT 2006; Reiter and Zahn 2006; Aughney 2008b). In a study of old barns with known roosts being converted into dwellings, Briggs (1995, 2004) found that the vast majority (77%) of converted barns have not maintained their bat species, even where mitigation was included.

Although used by all British species except horseshoe bats, so called “bat boxes” are used mostly by small numbers of bats, often males or small mating groups, with only a few supporting maternity colonies of bats (Swift 2004; Poulton 2006). Heated bat boxes have shown some success as mitigation for maternity colonies of common and soprano pipistrelles (CET 2005; Swift 2005). The Vincent Wildlife Trust has managed many particularly successful roost restoration projects for the lesser horseshoe bat (Schofield 2008).

Monitoring of mitigation is widely viewed as inadequate (BCT/BMT Cordah 2005).

### Mortality

Direct mortality from development activities may occur when roosts are disturbed / destroyed, when ineffective exclusion methods are used, by chemical poisoning, or through novel collision hazards such as increased traffic or wind farms. The loss of a single roost may be critical in the ecology of the local population; and if the developer is not aware of the roost, there is also potential for the bats themselves to be killed during the development works. However, cumulative impacts have largely been unreported, and as bats are K-selected species, with a slow rate of reproduction, this could impact seriously on the local or even national populations (Hötcker *et al* 2005).

There no published quantification of accidental bat mortality from development or other activities. Household and developers requiring to exclude bats from a roost must gain a government licence under the terms of the Habitats Regulations, which controls the methods used, thus in most such cases the bats escape death. However, it has been speculated that perhaps the majority of domestic and developer problem roosts never come to light but are dealt with directly (Childs 2003). The methods used to remove the perceived ‘pest’ may be indiscriminate or inappropriate means such as poisons, smoke or other disturbance or even physical violence (personal observations; Dow 2004; Herbert 2005; Childs 2003). Wray *et al* (2002) [reported in BCT/BMT Cordah 2005:29-30] calculated an estimate of 2800 pipistrelles excluded (though not killed) per annum under SNH advice in Scotland, from 35 domestic colonies. It was considered “highly likely that this rate of exclusion will have a significant effect on pipistrelle populations”. This estimate does not include colonies excluded under licence during development works, nor those excluded illegally. For 2009, 195 exclusion licences were issued in Scotland<sup>27</sup> for circa 1000-2000 bats (David Laing pers. comm.); in Northern Ireland (Donna Cassidy, DoENI, pers. comm.) 33 licences (an unknown number of bats) but assuming for the pipistrelle roosts an average of 80 bats per roost (Harris *et al* 1995) then a minimum of 2000 bats were excluded, a higher impact than for Scotland where comparable habitats cover over twice the area (MLURI 1993). Assuming that as many unreported non-licensed exclusions occur each year yields an estimate of 1000-2000 illegally excluded bats, though the level of mortality within this can only be guessed. A pessimist might consider that, since penalties are so puny, roosts which are discovered and for which a licence is granted constitute a tiny minority and arrive at a figure an order of magnitude greater.

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<sup>27</sup> Scottish Government (David Laing pers.comm.): Out of 396 licences issued, 241 were for EPS, 195 were for bats: 4 Natterer's, 7 Daubenton's, 27 brown long-eared, and 159 pipistrelle, mainly soprano. Of the pipistrelle roosts, a few are about 250 bats, but 90% of applications relate to less than 5 bats and often just a couple of droppings under a slate.

Renewable energy generation has resulted in erection of thousands of wind turbines, and studies from around the world, especially USA and Canada, have shown significant bat mortality of both migrant and resident bats (Johnson *et al* 2002; Bach and Rahmel 2004; Durr and Bach 2004; Johnson 2005; Kerns *et al* 2005; Ontario Ministry of Natural Resources 2006; Barclay *et al* 2007; Kunz *et al* 2007a, 2007b; Kuvlesky *et al* 2007; Arnett *et al* 2008; Horn *et al* 2008; Rodrigues *et al* 2008; Jones *et al* 2009a). Some European states, notably Germany, have engaged in extensive research into assessment and mitigation of the impacts and a guidance framework has been published for Europe (Rodrigues *et al* 2008). Hötcker *et al* (2005) modelled population responses to the potential increases in annual mortality from the erection of wind turbines and found that an additional 0.1% increase could cause significant population declines; average adult annual mortality rates are approximately 25-30% (Altringham 2003). If this outcome is replicated across the country then an impact upon national populations is possible.

As wind farms spread rapidly across the UK, urgent research into impacts and cumulative effects on wildlife was proposed, though with no mention of bats (Marsh *et al* 2001); it is now thought that bats may be more at risk from turbines than birds (Jones *et al* 2009b). Racey (2009) highlighted the potential impact of wind turbines as the paramount current concern for the conservation of bats in the UK, and one where government and NGOs have yet to make much headway. The UK currently has around 3000 operational turbines with a projected figure of almost 10000 by the year 2030 (Bowyer *et al* 2009) and taking a range of empirical mortality rates<sup>28</sup> suggests perhaps 28000 (range 2800 to 121800) additional bat deaths per annum in the UK. Natural England consider that currently it is not possible to confirm or deny that bat populations in the UK are at risk from wind turbines, due to inadequate data (Mitchell-Jones and Carlin 2009). They call for urgent research and monitoring such as corpse searches below turbines to help assess and predict the risk. Amongst bat consultants in the UK there is on-going debate about what constitutes good practice in survey and assessment (Betts 2006; Cook *et al* 2008; Cathrine and Spray 2009). Although the level of ecological scrutiny has increased, survey and assessment is still largely rudimentary and lacking rigour (personal observations). The potential for impacts upon bats has also been observed for the offshore wind energy industry in Europe (Ahlen *et al* 2007) and USA (Snyder and Kaiser 2009). That there will be bat mortality at wind turbines in the UK cannot be in doubt, but research and quantification has only just begun (Jones *et al* 2009a; Jones *et al* 2009b).

Bat mortality from traffic collisions may be locally very important and Altringham (2009) provides a first rough estimate for the UK of over 1 bat per km per year (50,000 bats per annum); concern has also been shown in Europe and the USA (Russell *et al* 2009; Leisinski 2008; Kerth and Melber 2009; Gaisler *et al* 2009).

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<sup>28</sup> Estimates of bat fatality in Europe range from 1.34 to 27.2 per turbine per year (Rodrigues *et al* 2008), and 0.1 to 69.6 reported from North America. Estimating mortality based on these data produces a range from 13400 to 27200 bats per year (based on European data); the upper limit of the American data was not used for estimation, as it reflects intense migratory flyways that are believed not to occur in the UK. American data from mid-western states has been translated as 0.2 to 8.7 bats per MW installed capacity, typically <2 bats/MW/year, compared with 0.1 to 7.8 per turbine, or 0.2 to 7.4 per 2000m<sup>3</sup> rotor-swept area (Arnett *et al* 2008). The UK is projected to have 14GW of installed capacity (approx. 10000 turbines) by 2030 (Bowyer *et al* 2009). Estimation from these data provides a range from 2800 to 121800 bat fatalities/year (2/MW = 28000 bats/year). The reported patterns and estimates of fatalities are biased by many inconsistencies in survey and calculation methods and it is not known what proportion this represents of the bats that moved through the airspace (Arnett *et al* 2008).

Perhaps the most serious anthropogenic cause of bat deaths is from pet and feral cats, estimated at 230,000 bats per annum (Altringham 2003).

In combination, these mortality estimates total 308,000 bats per annum, which would represent over 10% of the estimated total bat population in the UK (estimated at 2.36 million, up to 10 million; Morris 1993; Harris *et al* 1995). Clearly, further investigation is required to achieve robust estimates of populations and mortality.

### 1.4.3 Indirect Impacts

#### Light pollution

Light pollution from development is recognised as an issue for bats (e.g. Anon 1997; Jones 2000; Outen 1998; Emery 2008; Fure 2006; ILE/BCT 2007; Anon 2009b). Some fast-flying bat species, including noctule, Leisler's, serotine, and pipistrelles are attracted to the insects which gather around certain lights, such as 'white' mercury streetlamps (Rydell 1991, 1992; Blake *et al* 1994; Rydell and Racey 1995; Danielle Linton pers. comm. 2009), benefitting from the ready food source but other species avoid areas of illumination (Stone *et al* 2009). However, emergence from the roost may be delayed (Swift 1980; Downs *et al* 2003; Boldogh *et al* 2007), and commuting / foraging may be reduced or interrupted when the commuting route / foraging area is illuminated (Stone *et al* 2009) which may be especially important for species which select roosts within 0.5 km of woodland where they concentrate their foraging (Entwistle *et al* 1996) or *Myotis* bats (Rydell 1992; Boldogh *et al* 2007). Lighting of buildings with roosts may result in restricted growth of juvenile bats (Boldogh *et al* 2007). Bats show reduced activity even at very low levels of ambient light, such as during a full moon, when light levels may reach 0.12 lux (Ciechanowski *et al* 2007; Linton 2010). In Holland, Kuijper *et al* (2008) found pond bats showed up to 97% avoidance of lit areas of canals while foraging, with even low levels of light intensity (0.6 – 3.2 lux). These bats also made 60% fewer attempts to feed.

Lighting may therefore be considered as disturbance of bats (Garland and Markham 2007; Natural England 2007). Article 12 of the Habitats Directive prohibits "deliberate disturbance of Annex IV species" (all UK bats) whether at a roost or elsewhere. The UK Habitats Regulations intend that disturbance must be likely to significantly affect either the local distribution or abundance, or the ability of a significant group to survive or breed, otherwise it may be considered as "Minor perturbation" which, though not strictly defined, is not considered an offence (Garland and Markham 2007). Street lighting is excluded from light pollution legislation in England and Wales (Coatham 2005; Stone *et al* 2009).

#### Noise pollution

Negative effects of noise pollution on distribution and fecundity have been demonstrated for birds (reviews: Kaseloo *et al* 2004; Slabbekoorn & Ripmeester 2008). Shirley *et al* (2001) found significant inhibition of emergence and activity by Daubenton's bats during a music festival, while greater mouse-eared bats are displaced from foraging habitats where traffic noise reduces their foraging success (Schaub *et al* 2008). Ultrasound emissions have also been shown to result in reduced bat activity, attributed to the greater difficulty in the bats hearing the echoes of insects (Mackey and Barclay 1989; Spanjer 2006). In USA, the Bats and Wind Energy Cooperative have supported testing of the deterrent effect of ultrasound emissions, resulting in activity reduced by up to 97.5% within 12-15 metres (Szewczak and Arnett 2007). Gleaning bats, with passive echolocation foraging habits, appear especially vulnerable to this disturbance, and species with short, broad wings have been shown to be generally at greater extinction risk (Jones *et al* 2003; Safi and Kerth 2004; Jones 2008).

### Habitat Fragmentation / Degradation

Bright (1993) predicted bats would be vulnerable to habitat fragmentation, and the issue is recognised globally (Hutson *et al* 2001). Studies in Britain (Walsh and Harris 1996a,b) and in the open landscapes of Holland show bats to utilise connecting linear habitat elements, such as rivers, woodland edges, tree-lines, hedges with trees, etc. as flight paths (Limpens and Kapteyn 1991; Verboom and Huitema 1997). Infrastructure such as roads may form movement barriers to bats (Kerth and Melber 2009). Smaller woodland patches are used by fewer species of bat, especially if patch size was less than 30ha, or if the patch was isolated from other patches (de Jong and Ahlen 1991; Racey 1998). Many studies have shown trends towards fragmentation of natural habitats (Barr and Gillespie 2000; Robinson and Sutherland 2002; Bennett 2003; Jongman *et al* 2004), and the resulting impacts on bats (e.g. Law *et al* 1999; Estrada and Coates-Estrada 2002; Racey and Entwistle 2003; Gorresen and Willig 2004; Duchamp and Swihart 2008; Meyer *et al* 2008; Struebig *et al* 2008; Struebig *et al* 2009; Estrada-Villegas *et al* 2010) and other wildlife (e.g. Saunders *et al* 1991; Fahrig 2003; Lienert 2004; Honnay and Jacquemyn 2007; Andrews *et al* 2008; Lampila *et al* 2009). Habitat degradation may also result in long-term 'extinction debt' (Tilman *et al* 1994; Malanson 2008; Kuussaari *et al* 2009).

There is little explicit legal protection for bats' habitat (Garland and Markham 2007): the law recognises, for Annex II species, the "ecological integrity" of SACs protecting the features and habitat essential to the bat colony; the WCA requires consideration by LPAs of impacts upon bats where proposals may adversely affect a roost designated SSSI<sup>29</sup>. Garland and Markham (2007) argue that protection also applies where proposals would affect the viability of any bat roost, for example by removal of a unique commuting link<sup>30</sup> and this appears supported by the European Commission guidance (EC 2007).

Recent years have seen development of initiatives and methods to re-connect a network of habitats with the aim of long-term sustainability, as integrated habitat networks, and these will offer enhanced resilience for bat populations (e.g. Watts *et al* 2005; Catchpole 2006, 2007; Kettunen *et al* 2007; ELFHNP 2009; Latham and Gillespie 2009). Networks are supported by international and national laws and policy such as the Habitats Directive Article 10 (Council Directive 92/43/EEC, 1992), PPS9 (ODPM 2005b) and the consolidated Scottish Planning Policy (Scottish Government 2010). For bats, bridges and tunnels are being tested to allow safe crossing of transport corridors (e.g. Bach *et al* 2004; Limpens *et al* 2005; Wray *et al* 2005; Kerth and Melber 2009).

#### **1.4.4 Cumulative Impacts**

Sections 1.4.2 and 1.4.3 review a range of key impacts which may act in concert. Individual developments may result in negligible impacts, but accumulation of impacts from permitted changes across landscape and time may compound as major impacts. This "tyranny of small decisions made singly" has been recognised as a challenge to biodiversity, highlighting the need to adopt robust and evidence-based methods accounting for both indirect and synergistic effects in a cumulative impact assessment (CIA) (Theobald *et al* 1997; Stakhiv 1998). Canada led development of "cumulative effects assessment" methods (CEA) (e.g.

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<sup>29</sup> For an example of legislation protecting an SAC and SSSI designated bat roost being applied in such circumstances, see the Planning Inspectorate Appeal Decision APP/X1165/A/06/2024260/NWF published in 2006, ruling against Riviera Holiday Village (Garland and Markham 2007: 4).

<sup>30</sup> One possible example of an important bat commuting route might be where only one hedgerow connects a roost of Daubenton's bats to their feeding grounds. This hedgerow would probably be considered an essential attribute of the roost as its removal might have a major impact on the viability of the roost (Garland and Markham 2007: 3).

Grzybowski and Associates 2001). The process makes a cross-cutting assessment, in contrast to the linear project-based methods of EIA and SEA<sup>31</sup> (Therivel and Ross 2007).

Due to uncertainties over method, cumulative impact assessment has lagged behind the growth in environmental assessment of developments and is seldom described or included (Burris and Canter 1997; Cooper and Sheate 2002; Wärnbäck and Hilding-Rydevik 2008). Although bird-related cumulative assessment has received much recent attention (e.g. King *et al* 2009, Masden *et al* 2010), there is no equivalent European or UK guidance for bats, as basic population data are scarce for most British bat species (J. Aegerter pers. comm.). However, the paucity of such data, and lack of guidance framework should not allow this important question to go unaddressed, or the sustainability of long-term populations could be at risk (Altringham 2009).

The EC EIA Amendment Directive 97/11/EC introduced a legal requirement to address cumulative impacts for all developments subject to EIA (European Commission 1997), and Article 6(3) of the Habitats Directive covers developments potentially affecting Natura 2000 sites (Jones 2001). There is no such explicit duty for the majority of developments beyond those mentioned above. To encourage compliance, Cooper and Sheate (2002) concluded that LPAs should require developers to include cumulative effects in the EIA scoping process. Theobald *et al* (1997) and Gontier *et al* (2006) propose use of GIS mechanisms for quantifying and predicting impacts of fragmentation and displacement on biodiversity.

The fitness for purpose of the current cumulative impact assessment process has been questioned, as it has been observed to be “inadequately distinguished from (project-based) EA” and according to some authors may simply not work (Gunn and Noble, 2010). Whilst concepts, capability and resources for assessing cumulative impacts are limited, MacDonald (2000) has suggested that, in accordance with the spirit of the precautionary principle, a greater effort should be assigned to mitigate the impacts of each development impact. The English Nature ‘Toolkit’ recommends taking a precautionary approach to avoid overlooking potentially significant cumulative effects (LUC 2006).

The consideration of cumulative effects should seek to forecast potential emerging issues and make due assessment. Climate change has the potential to radically alter the available habitats for bats, although it is believed that there is a low risk of large-scale population losses (Robinson *et al* 2005; Hutson 2006; Walmsley *et al* 2007). The Home Energy Conservation Act 1995 requires LPAs to plan for increasing energy efficiency, such as additional loft and cavity wall insulation of new build and existing properties (Anderson 2006), and further measures will arise as climate change and fuel scarcity rise on the political agenda. These may impact negatively upon bats access to buildings (BCT/BMT Cordah 2005).

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<sup>31</sup> SEA addresses significant environmental effects arising from policies, plans and programmes, through assessment, mitigation, monitoring and public involvement (DCLG 2006a).

## **1.5 A Study of Biodiversity Screening in Local Development Planning in the UK**

There is growing experience in negotiating resolution of the inevitable conflicts between wildlife and humans for living space. Despite some signs of recovery bat populations are still threatened daily by development and their conservation is a government priority through the UK-BAP. National and international legal commitments underpin the requirement upon LPAs to screen development applications for potentially significant negative impacts on the favourable conservation status of bat populations.

This process is currently flawed in both intent and implementation. Legislation and guidance make clear obligation only in respect of certain categories of development, and focus on the most vulnerable species and roosts with scant consideration to the cumulative impacts at landscape scale of loss of habitat or roosts. A plethora of guidance gives patchy cover to the issues for the various stakeholders, though considerable progress has been made recently towards comprehensive and practical advice. LPAs are not all able to access suitable expert natural heritage skills, and SNCOs are cutting back their involvement in such cases putting greater pressure on LPA staff skills.

Impacts upon bats are poorly quantified and monitored although attention has now begun to focus on assessing potential impacts, such as habitat fragmentation or mortality at wind turbines, at a wider scale. As bat populations are vulnerable to small increases in annual mortality the need for better understanding of cumulative population impacts is acute.

The current study describes procedures currently operating within local development planning across the UK to screen proposals for potential impacts upon bats (Chapter 2), assesses the performance of these procedures (Chapter 3), investigates issues of planning and ecological practice and policy raised by LPA staff and specialist bat consultants (Chapter 4, 5), and through a multi-disciplinary synthesis develops tools and guidance to optimise effective fulfilment of legal obligations under both planning and biodiversity laws (Chapter 6).

## 2 Review of procedures for biodiversity screening of planning applications

The successful operation of development management in the UK could not only protect existing synanthropic bat populations dependent on the structures and habitats affected by half a million developments each year, but could offer significant enhancements in fulfilment of the biodiversity duty. Chapter 2 reviews the range of resources (Section 2.1) and procedures (Section 2.2) available to planning staff to help identify where bats are at risk. The effectiveness of representative protocols is investigated in Chapter 3. Questionnaire surveys of the practical experience and opinions of planning staff and bat consultants are reported in Chapters 4 and 5. In Chapter 6 these different observations of the impacts upon bats from development, and the operation of the screening process are discussed, and suggestions made for possible improvements.

The Planning Application process is described in Section 1.3.2. In an idealised case, an applicant would undertake any necessary survey prior to submitting an application; they would then make full disclosure at the application stage, followed by expert scrutiny within a cumulative assessment of the local development process, resulting in agreed proportionate evidence-based mitigation.

### 2.1 What resources are available to support the development screening process in an LPA ?

For an LPA officer to competently assess whether any particular planning application may affect bats they need to know (BCT/BMT Cordah 2005):

- What bat species are present in the area?
- How bats use the built and natural landscape of the proposal site and its environs?
- What works are proposed for the site, and with what methods?
- How these works are likely to impact on any bats present?

Most planning applications are determined under 'delegated powers' by a planning officer who weighs the significance of what they consider the 'material considerations' in each case. In some LPAs, the assessment of potential issues with bats may involve other LPA staff, such as ecologists or biodiversity officers. Given that even experienced bat consultants and researchers have differing views and experience on how bats use our landscape and structures, what 'tools' would be required for a non-specialist to adequately assess the possibilities for a given site?

Shortage of skills and resources is a frequent complaint by LPAs (Killian Pretty Review 2008). A brief review is provided below of the range and variation in currently available tools and resources available to planners to support them in making screening decisions:

- RESOURCES: The Application Package;  
Publications and Internet-based Materials;  
Availability of Existing Data on Local Biodiversity Resource;  
Time (work load and targets).
- SUPPORT: Biodiversity disclosure in Planning Applications;  
Access to an in-house ecology advisor;  
Support from external consultees - SNCO Staff and others;  
Support from NGOs and the voluntary sector;
- TRAINING: Planning Staff Training for Natural Heritage Issues;

### 2.1.1 Resources

#### The Application Package

This section is about consistency in the variety of information within planning applications received by LPA staff, and the problems that may ensue. The Killian Pretty Review found poor quality of applications to be a common complaint by LPAs, often applications lack even basic information (Killian Pretty Review 2008).

A planning application will typically consist of the Application Form, with one or more plans showing the existing features of the site and the proposed new features. There may be additional documents depending on the complexity or scale of the proposals:

- a tree plan and tree survey where trees are on site and may be affected;
- elevations, plans and sections of the existing and proposed site structures, and landform;
- an Environmental Statement where the development falls under the EIA Regulations, or otherwise may impact upon natural heritage;
- geotechnical information regarding hydrology, contaminated land, etc.

The Application form is a vital link to ensure that the necessary information is submitted. The validation process checks that the required information is present before accepting the Application as 'valid' and thus starting the clock on the statutory determination timescale. The introduction in England and Wales of the 1App form has brought standardised guidance on requirements for validation of applications (DCLG 2007), including both national and local requirements. LPAs can supplement National requirements by selecting additional Local requirements drawn from a nationally defined list, but should not require a level of detail to be provided that is unreasonable or disproportionate to the scale of the application.

A simple question addressing biodiversity is included in the national requirements, though a detailed "biodiversity survey and report" is one of the optional local requirements which LPAs can select (DCLG 2007): "Certain proposals such as the demolition of older buildings or roof spaces, removal of trees, scrub, hedgerows or alterations to water courses may affect protected species and [the applicant] will need to provide information on them, any potential impacts and any mitigation proposals." These new standards will encourage consistency in the approach taken by LPAs, reduce uncertainty amongst applicants as to what is required, and reduce delays in the determination due to invalid applications.

It is not explicit in government guidance that outline applications require any submission or consideration of biodiversity information, although it is implicit in the new validation guidelines (DCLG 2010), and is listed as an optional local requirement in the summary Appendix of the old validation guide (DCLG 2007).

Some LPAs do now offer clear specific guidance about bats and the validation process: Dorset County Council includes notes on bats in their Validation lists; and Hampshire Local Planning Authorities (under the umbrella group HIPOG<sup>1</sup>) also has a Checklist.

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<sup>1</sup> Association of Hampshire and Isle of Wight Local Authorities: Basingstoke and Deane BC, East Hampshire DC, Fareham BC, Gosport BC, Eastleigh BC, Hampshire CC, Hart BC, Havant BC, New Forest District Council, New Forest National Park Authority, Portsmouth City Council, Rushmoor BC, Southampton CC, Test Valley BC, Winchester CC,

Some LPAs have recommended submitting site photographs especially for assessment of landscape impacts, and all applications in Northern Ireland must be accompanied by “photographs of the site from various vantage points”. Some English and Welsh LPAs have included site photographs in the new local validation requirements. Greater use could be made of photographs in the screening of applications for bats, as they allow rapid assessment of building construction, setting and condition.

#### Publications and Internet-based Materials

There are perhaps too many sources of information and it can be difficult for relevant stakeholders (LPA staff, developers, householders, etc.) to identify the right source(s). Facilitating this choice must be one of the key roles of ‘good practice guidance’, such as the BCT’s guidance on bat surveys. Many internet-based planning and biodiversity resources are available to LPA staff through the websites of government bodies and NGOs, though there may be access restrictions applied locally within LPAs. A sample of key resources are listed in Appendix A.3.

#### Availability of Existing Data on Local Biodiversity Resource

Some local BRCs maintain a current, accurate database including bat records, but this ideal is scarce, and problems of patchy data collation, lack of recent data, or poor validation are too common, thus there is a bias towards poor access to data and also a lack of awareness of how to access what data are available (Heriot-Watt 2008; BCT/BMT Cordah 2005; Webley and Kelly 2009). Widespread support for strengthening the network and role of BRCs includes SNH (Ironsides Farrar 2003; Latimer 2009), the Welsh Local Government Association (WLGA 2002), ALGE (Lott 2006), RTPi (Tyldesley 1999), Cumbria Biological Data Network (2008), the Local Government Association (LGA 2006)<sup>2</sup> and central government (Anon 2005a,b). By the end of March 2008, Natural England had entered into agreements covering the whole of England (NBN 2009) while the Scottish Government is currently considering the possibility of pursuing establishment of BRCs for all Scotland (Scottish Government 2009a).

The availability of data about known roosts and other bat records varies widely: some areas have no accessible database of bat records (e.g. Perth and Kinross, Angus, Central, Clackmannanshire, Argyll, etc); others have sophisticated databases linked to Geographic Information System (GIS) which allow easy access for developers, consultants, LPA staff, and others: Cumbria Biological Data Network developed a GIS biodiversity evidence-base for use within the seven local LPAs (Cumbria Biological Data Network 2008). Access to records data is considered further in Section 6.4.3.

As the Recorder for Fife and Kinross Bat Group, I am involved in both generating such bat data and handling requests from consultants. Roost information has been gathered by the bat group since about 1980. For most known roosts, there has only ever been one visit made in response to the original enquiry. These visits are mostly made to provide information and reassurance to householders about their encounter with bats; if there is no problem then the species present and type of roost may not be identified. Often there is no

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<sup>2</sup> <http://www.lga.gov.uk/lga/aio/30959>, “The LGA believes that DEFRA, English Nature and local councils should ensure that the coverage of Local Record Centres is extended so that every local authority can benefit from easily accessible local species and habitat data.” Paper on Natural Environment and Rural Communities Bill, House of Lords Report Stage, 15 March (LGA2006).

further problem, the householder being happy to let the bats remain, though sometimes further visits are required and sometimes the outcome is the exclusion of a bat colony. The data held for each site are very variable in quality and quantity, and a large proportion is now seriously out of date. Of the many consultant bat surveys undertaken with Fife, only 3 have shared the field data from their surveys (unpublished personal observations), and this wasted resource has also been highlighted by others (e.g. BCT/BMT Cordah 2005). West Yorkshire<sup>3</sup> and Teignbridge District Council are two areas where biological data from all development surveys are required to be submitted to the local BRC (biological records centre).

It is a standard part of screening for bats to make a desk study, seeking existing records of bats from or near the site. However, it is uncertain how close or recent a record should be to be considered as “significant”. Bats may abandon roosts for many reasons, but droppings persist: when is a roost no longer considered a roost under the WCA and Habitats Directive? If bats were recorded at or near a site 50, or 5 years ago is that still relevant? Some screening guidance asks if bats are “present in the locality”, but what is meant by this phrase, what distance from the site is significant? Do foraging bats count as “present”? Clear guidance on these questions is required.

#### Time (workload and targets)

Planning services are required to meet ambitious targets for responding to and determining applications: validation within 3 days (or 5-10 days for major applications); determination within eight weeks, or 13 weeks for more complex proposals, and in some cases determination takes over 12 months. There are c. 40,000 applications in Scotland per year (Scottish Government 2008c) and c. 500,000 in the UK. With about 650 development control planners employed by Scottish LPAs, the average planner thus has approximately 2.5 days to process each application. A similar situation pertains across the UK though the government target is higher, 150-200 applications per officer per year (DTLR 2002).

### **2.1.2 Support**

#### Biodiversity disclosure in Planning Applications

Protected species information was rarely requested in English or Welsh planning forms prior to 1App<sup>4</sup> (Gillespie and Rasey 2003), and there was no standard declaration relating to biodiversity issues; indeed this remains the case in Scotland and Northern Ireland.

All Scottish LPA application forms are now available centrally from the Scottish Government e-Planning website<sup>5</sup>, a ‘convenience’ which divorces the forms and associated guidance, such as Perth and Kinross Council’s Biodiversity Guides. However, the Standard Application Guidance Note<sup>6</sup> includes biodiversity (para.38-40), though couched in very general language and with a focus on designated sites; EPS are not mentioned. The ‘Householder’ and ‘Work on Trees’ Guidance Notes take a more detailed approach and do specifically mention bats (para18<sup>7</sup>, and para10<sup>8</sup>, respectively) but biodiversity is not mentioned on any Scottish form,

<sup>3</sup> West Yorkshire Ecology (<http://www.ecology.wyjs.org.uk/>) is the BRC serving five LPAs: Bradford, Calderdale, Kirklees, Leeds and Wakefield District Councils

<sup>4</sup> The new standard application form, see Section 1.3.2

<sup>5</sup> <https://eplanning.scotland.gov.uk/WAM/staticforms.htm?localAuthority=313>

<sup>6</sup> <https://eplanning.scotland.gov.uk/skin/IDOXForms/guidance/PP.pdf> “Planning Permission Guidance Notes “

<sup>7</sup> “18. Your proposals may have an impact on wildlife. For instance, your proposals may affect trees on your site and in some cases a tree survey may be needed. A significant number of householder applications can affect bats. Discovering this after the

other than whether any trees are on or adjacent to the site. Biodiversity is not mentioned in either notes or form for Listed Building Consent.

The Planning Service Northern Ireland website<sup>9</sup> asks that planning application drawings clearly and accurately show “the location of any protected species of which you are aware e.g. a badger sett or a rare plant”, but there is no mention of biodiversity in the application forms.

English and Welsh Applications are made with the same Standard Application Form (1App) and the same national Guidance Notes, though information on local requirements varies between LPAs. The 1App Form includes a declaration about Biodiversity and Geodiversity issues on the site (Question 14). This must be answered as a requirement of validation, though the required level of detail is set locally. The Application Guidance Note provides some simple further explanation. Due diligence in making consideration and disclosure of relevant biodiversity is a key assumption of Question 14, but depends upon the knowledge and willingness of the applicant and the planning officer.

#### Access to internal ecological expertise

The RTPI considered it good practice that “there should be dedicated staff to advise on ecological issues” (Tyldesley 1999). The proportion of LPAs that employ some kind of ecological advisor (ecologist, biodiversity officer or environmental strategy officer, etc.) has been increasing. English Nature (Gillespie and Rasey 2004) found 52% of English LPAs have ecologists, while Scott (2007) considered just under a third as having ecologists, measured as the number of English LPAs with members of ALGE. While this has provided some support to development control planners their time is shared with other core government initiatives such as Local Biodiversity Plan implementation. In-group variation in the level of detailed knowledge that each advisory officer has in relation to bats may result in very different advice being provided.

Variation exists between LPAs in whether an ecologist / biodiversity officer is involved in screening applications: ecologist / biodiversity officer checks the weekly lists of applications submitted and comments on potential issues (e.g. Carmarthenshire); a few LPAs use GIS and a bat alert layer during the normal process of constraint checking; many seem to rely on the planning officer either using a checklist or their own judgement to decide whether to seek a specialist view; in rare cases, an external ecological consultant provides this service, such as the 20+ London Boroughs supporting Greenspace Information for Greater London<sup>10</sup>, or the 7 partners in West Yorkshire Ecology<sup>11</sup>.

A study by Heriot-Watt (2007) found that more than 10% of LPA staff could seldom or never access advice on landscape or ecology. Depending on the aspect, between 19% and 49% said

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application is submitted can lead to lengthy delays. Bats and their resting places are protected by law and it is an offence to damage or destroy them. If you think your proposed works could affect a protected species or their habitat you should speak to a planning officer and find out what information you need to provide with your application. You may need a licence from Scottish Natural Heritage (SNH) to carry out a survey.”

<sup>8</sup> “10. Please note that protected species may be affected by tree works. For instance bat roosts may be present on a tree or trees. If this is the case, a survey may be required to support your proposals. Consultation with Scottish Natural Heritage (SNH) may also be necessary. If you think this may be the case, you should contact your planning authority before submitting your application.”

<sup>9</sup> Explanatory notes for applicants, What should I enclose with my application form? At

[http://www.planningni.gov.uk/index/advice/fees\\_forms/notes/notes\\_enclose.htm](http://www.planningni.gov.uk/index/advice/fees_forms/notes/notes_enclose.htm), accessed 22 Dec 09.

<sup>10</sup> Greenspace Information for Greater London (GiGL, <http://www.gigl.org.uk/>) which replaced the London Ecology Unit.

<sup>11</sup> West Yorkshire Ecology Wakefield (WYE, <http://www.ecology.wyjs.org.uk/>)

they did not know where to access relevant data. In general, access to experts appeared better than access to data.

#### Support from external statutory consultees - SNCO Staff and others

SNH have noted a 60% increase in their planning-related casework since 2003, particularly in discretionary consultations from planning authorities, paralleled by growth in complex applications for renewable energy projects, and the new requirement for Strategic Environmental Assessment (SEA) of LPA plans (Heriot-Watt 2007).

“It appears that much of this growth arises from planning authorities adopting a precautionary or risk-averse approach to proposed developments which, in their view, could have impacts on the wider natural heritage.”  
(Heriot-Watt 2007)

It was also noted that “over half of requests for advice absorbed SNH staff time where there was no clear beneficial outcome for the natural heritage”. Heriot-Watt recommended that SNH should:

1. Refocus it's effort away from planning applications at the local scale, to:
  - The National Planning Framework and national developments;
  - Development Plans and Strategic Environmental Assessment;
  - Major developments and associated statutory pre-consultation procedures;
2. Establish agreed service level protocols with partners (LPAs, key national agencies);
3. Coordinate training for capacity building of natural heritage skills in partner organisations;
4. Make responses proportionate to risk factors, and with more use of standard responses.

SNH staff responses indicated a need for more effective use of their specialist skills, with many LPA discretionary consultations being of a very minor nature:

*“SNH need not be involved in minor or local cases where the scope and scale of effects are not significant including, for instance, some small-scale renewables developments and bat casework.”*

*“Planning authorities often resort to seeking advice from SNH when, in delivering their biodiversity and landscape duties, they should have the expertise to hand.”*

*“Increasing the capacity of planning authorities to deliver for biodiversity, geodiversity and landscape is important - there is a need to increase trust of SNH staff in planners' ability to understand natural heritage issues and make decisions which reflect this” (Heriot-Watt 2007).*

The proposed changes in working practice are not without risk to Scotland's natural heritage, as SNH is its principal advocate; Heriot-Watt note “There may be increased risk of cumulative impacts if SNH engage less in local casework.”

In response to this growth in planning related casework, SNCOs have re-focused and scaled back the level of effort spent on minor applications, which are viewed as having local impacts

only (personal observation), though responses where EPS are affected remain a top priority. At November 2007, SNH had achieved ten consultation protocol agreements with LPAs, and nine in development; these consider all development related bat casework to be of high importance (Heriot-Watt 2008). CCW consider all planning consultations affecting EPS to be “Priority one” requiring a High level of response (rigorous consideration and a detailed response) (CCW 2007).

In Northern Ireland, the Environment and Heritage Service may be consulted by The Planning Service, but it was not possible to gather further detail about this mechanism, or whether they and CCW have also scaled back their input to discretionary consultations.

Natural England have changed their approach to planning casework, reducing their response to routine discretionary consultations involving protected species, and consider that LPAs should take greater responsibility for handling such issues. NE will now comment only on cases involving Special Areas of Conservation (SACs), Special Protecting Areas (SPAs), Sites of Special Scientific Interest (SSSIs), and cases that would affect, for example, populations of Biodiversity Action Plan species and habitats or green infrastructure provision (Planning Inspectorate 2009).

Weller and Zielinski (2006) found that “few true bat specialists exist” amongst those involved in bat surveying in the USA, and this matches my personal observations in the UK where many consultants who undertake bat surveys are primarily ornithologists, but may also undertake other protected species surveys or occasional phase 1 habitat surveys<sup>12</sup>.

#### External non-statutory support - NGOs and the voluntary sector

Some county or regional areas have developed their own guidance, often with involvement from the voluntary local bat group e.g. Gloucestershire, Durham (BCT 1999). Professional organisations such as RTPI, IEEM, etc. offer sectoral support, and some produce industry-wide guidance addressing aspects of biodiversity and development (e.g. IEEM 2006). ALGE provide a professional support network for ecologist staff in LPAs and is working with a partnership of national and local bodies developing an online “Biodiversity Toolkit” to allow LPAs access to relevant biodiversity guidance, hosted by the government Planning Portal (Michael Oxford pers. comm.). Some LPAs already use the proposed draft ‘biodiversity thresholds’, including a trigger checklist to guide screening for potential need for bats survey. The bat checklist developed by this project is discussed further in Section 3.2.2. Many other organisations operate web-based fora which allow officers to share information and experience with their peers.

Some Local Bat Groups are closely involved, and routinely check the published weekly lists of planning applications received by their LPA and comment upon any perceived potential bat issues (e.g. FKBG, personal experience). The BCT has increasingly been involved in projects supporting the inclusion of due consideration for bats in the land-use planning system in the UK: e.g. BCT Bats and the Built Environment Project Officer; Books - Biodiversity for low and zero carbon buildings, Bat Surveys-Good Practice Guidance, Mitigation Conference Proceedings, Biodiversity positive: eco-towns biodiversity worksheet. The IEEM provides

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<sup>12</sup> Phase I is a rapid field survey classification technique to record semi-natural vegetation habitats and associated wildlife habitats. JNCC (2007), Handbook for Phase I habitat survey - a technique for environmental audit, Revised reprint 2003, reprinted 2007, ISBN 0 86139 636 7.

training and support for professional ecologists including over 300 (as at May 2009) who are listed in the directory of members as actively involved in bat surveys.

### 2.1.3 Training

#### Training Planning Staff for the Natural Heritage

The need for building capacity in natural heritage skills relating to bats was recognised in 1991 when Resolution 20 of the Eurobats Agreement was made (Fenn 2002):

“those who come into contact with bats in the course of their work...should be targeted to receive appropriate training. The construction industry is often at the front line when contact with bats is made and has a vital role to play.”

In 2002, when Fenn reviewed bats and the construction industry, he concluded there was not a single current initiative meeting the aims of Resolution 20. A questionnaire survey showed that amongst architects and surveyors, 68% had no relevant training about bats, and they showed widespread ignorance about bats.

The majority of current planning staff, including development control staff, will mainly have gained understanding of natural heritage issues through their work experience and Continuous Professional Development (CPD) programme. Planning officers typically have tertiary education at one of the UK ‘planning schools’ leading to RTPI Chartered Town Planner status, however, the syllabi have historically included little or no provision for the consideration of natural heritage issues.

Currently, the RTPI accredit 31 planning schools, which may include at least one module covering natural heritage. The four streams of Planning Courses at the School of the Built Environment, Heriot-Watt University do not mention “natural heritage” or “biodiversity” in the online course syllabus but some do include an environment (*sensu latu*) module<sup>13</sup>.

SNH commissioned Heriot-Watt University to study natural heritage skills in Scottish LPAs, a survey which revealed significant skills gaps (Heriot-Watt 2008). The study aimed to investigate the need for SNH and its partners to invest in natural heritage related continuing professional development for planning authority staff. Amongst planners, 37% had received some form of natural heritage training in the past two years. When LPA staff were asked if they had at least an awareness and at least adequate competence, the largest skills gaps were in ecology (70%) and earth heritage (67%) (Gillespie and Rasey 2003). A similar study was undertaken for The Improvement Service (Higgins *et al* 2007) to “explore the existence of a gap in skills and knowledge within Scottish planning authorities in relation to the delivery of the modernised planning system.” It identified weaknesses in LPA staff of core and specialist planning skills for nature conservation and environment. Nature Conservation was one of the top five skill areas planners identified as requiring awareness (58%), though only 11% perceived it as essential; a remarkable 28% considered that there was no need for them to have an awareness of nature conservation. The report concluded that skills need developed in four key areas, one of which, “specialist skills”, includes biodiversity and nature conservation. These findings match other studies (Tyldesley 1999; BCT/BMT Cordah 2005).

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<sup>13</sup> 1st year module “Introduction to the Environment”,  
[http://www.sbe.hw.ac.uk/currentstudents/studentinfo/Modules\\_200809.htm](http://www.sbe.hw.ac.uk/currentstudents/studentinfo/Modules_200809.htm)

LPAs do not and cannot match the range and depth of natural heritage experience and skills present in SNCOs (Heriot-Watt 2008:50). Capacity building within LPAs was a key recommendation for SNH (ibid), along with exploiting the internet as a vehicle for supporting material and links with the nascent e-planning system (ibid:7). Previous studies have also proposed capacity building to address the gap in natural heritage skills in LPAs (Heriot-Watt 2007:16; Ironside Farrar 2003; ERM 2004; Natural Capital 2007). In December 2007, Heriot-Watt conducted a stakeholder workshop where capacity building in LPAs was supported, but it was noted that “the capacity and skills (of LPAs) to address natural heritage issues was in some respects declining”. It has been recommended that LPAs employ more ecologists, but also noted that there are considerable financial strictures on this process. Further, LPAs appear to place premium upon external expert input from SNCOs: “There are numerous cases where the LPA could make a decision but consult SNH so that they have ‘back-up’”; “SNH responses often carry more weight than internal input to planning casework” (Heriot-Watt 2007).

Benefits of capacity building, especially if in tandem with awareness raising amongst client groups, would include streamlining of determination and development timescales, as fewer developers would submit insufficient details, and it would be rare for surveys to be requested late in the determination process. This would do much to address the kind of issues raised for example by the wind energy industry (BWEA 2004, 2008; Ellis *et al* 2009) or in the broader modernising planning agenda (Barker 2006; Cowell and Owens 2006).

#### **2.1.4 Summary**

So after investigating all these available ‘resources’, what then does the average ‘joe planner’ have to help them make a sound decision about whether to ask for a bat report, or even to assess one if it is submitted? Although in principle there are many resources available to LPA staff in support of assessing the potential for issues with bats the practice is more confusing. The awareness of the legal requirements, uptake and application of existing resources vary enormously between individual staff, between LPAs and between countries.

## **2.2 Review of current practice in screening procedures**

This study investigated not only the published documents relating to bats and planning but also the decision making process within LPAs. Thus, I collated both published and unpublished (internal) “Screening Protocols” and guides, and also descriptions of how these are used in the LPA “Screening Process” for potential natural heritage issues relating to bats.

### **2.2.1 Method**

Enquiries were made requesting copies of any guidance available for the identification of bat issues in planning applications. Requests were made to Scottish LPAs, Biodiversity officers, SNH, NE, CCW, BCT, and local Bat Groups. As described in Chapters 4 and 5, questionnaires sought information from a range of those directly involved and those advising in the screening of planning applications for bats issues.

This study sought to gather information from as many LPAs across the UK as possible, as they all share the same basic issues in respect of bats and development. The Channel Isles and Isle of Man were not included in the study. Due to continual changes in the structure of

local government, the number of LPAs does not remain constant, for example in 2009 Durham County Council was formed from seven former District Councils<sup>14</sup>.

At the end of 2008, there were a total of 438 Local Planning Authorities in mainland UK<sup>15</sup>, and in Northern Ireland a further 10 LPAs, although all planning applications are processed by The Planning Service of the Department of the Environment.

Of Scottish LPAs, data were gathered for 10 with 9 having guidance in place covering EPS and planning or bats and planning. Across England, protocols and guidance were collated from 21 of the 369 LPAs, including the 9 English NPAs. Guidance was collated from 6 of the 25 planning authorities.

National guidance was collated from Natural England (formerly English Nature), The Scottish Government (formerly Scottish Executive), Countryside Council for Wales, the Bat Conservation Trust, and the Department of the Environment Northern Ireland.

### 2.2.2 Results

Of the 32 responses collated, most provided a copy of the specific local guidance or protocol used for making an assessment of the need for bat surveys. To these I added three publications that I already knew through professional awareness and which offer regional or national guidance on bats and development. I did not include The Bat Workers' Manual (Mitchell-Jones and McLeish 2004) in the study as it is intended for use only by bat workers, and not by planners or developers. It does include a brief review of the obligations to consider bats in development planning, but it offers no guidance on the screening process.

Methods used by LPAs range from use of simple general guidance, or using specific locally designed protocols, to applying the expert opinion of a staff member to screening all applications. A summary of the documents considered is included in Table 2.1.

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<sup>14</sup> Chester-le-Street, Derwentside, City of Durham, Easington, Borough of Sedgefield, Teesdale, and Wear Valley were merged under The County Durham (Structural Change) Order 2008, [http://www.opsi.gov.uk/si/si2008/uksi\\_20080493\\_en\\_1](http://www.opsi.gov.uk/si/si2008/uksi_20080493_en_1)

<sup>15</sup> 22 Welsh principle area LPAs, 3 Welsh NPAs, 32 unitary authority LPAs in Scotland (Councils), 2 Scottish National Park Authorities, 35 Two-tier authorities (Shire Counties), 201 Districts and Boroughs, 33 London boroughs, 35 Metropolitan districts, 56 Unitary authorities, and 9 English NPAs.

Table 2.1 Summary of characteristics of screening protocol types received.

	type of guidance										date	pages	subject			sphere		
	good practice guidance	government / SNCO guidance	Supplementary Planning Guide (SPG)	Planning Advice Note (PAN)	internal advisory note	advisory note / leaflet	unwritten	research report	supplementary declaration form	bats			EPS / protected species	biodiversity	UK wide	national	regional / local	
<b>NATIONAL</b>																		
BCT Bat Survey Guide	Y	-	-	-	-	-	-	-	-	-	2007	82	Y	-	-	Y	-	-
EN Bat Mitigation Guidelines (BMG)	Y	Y	-	-	-	-	-	-	-	-	2004	73	Y	-	-	Y	-	-
<b>SCOTTISH</b>																		
Scottish Government	-	Y	-	-	-	-	-	-	-	-	2001	13	-	Y	-	-	Y	-
Scottish Borders Council	-	-	Y	-	-	-	-	-	-	-	2006	60	-	-	Y	-	-	Y
Aberdeenshire Council	-	-	-	-	Y	-	-	-	-	-	2007	4	Y	-	-	-	-	Y
Highland Council	-	-	-	-	-	Y	-	-	-	-	2008	27	-	Y	-	-	-	Y
Falkirk Council	-	-	Y	-	-	-	-	-	-	-	2007	40	-	-	Y	-	-	Y
Tayside Biodiversity Partnership (Perth and Kinross, Dundee City and Angus Councils) <sup>1</sup>	-	-	-	-	-	Y	-	-	-	-	2006	12	-	-	Y	-	-	Y
East Lothian Council <sup>2</sup>	-	-	-	-	-	-	Y	-	-	-	n/a	0	-	-	Y	-	-	Y
Inverclyde, East Renfrewshire and Renfrewshire LBAP Partnership	Y	-	-	-	-	-	-	-	-	-	2005	11	Y	-	-	-	Y	-
Cairngorms National Park Authority	-	-	-	-	-	Y	-	-	-	-	2005	6	-	-	Y	-	-	Y
<b>WELSH</b>																		
Pembrokeshire Coast National Park Authority	-	-	Y	-	-	-	-	-	-	-	2006	30	-	-	Y	-	-	Y
Countryside Council for Wales (CCW)	-	-	-	-	-	-	Y	-	-	-	2005	2	Y	-	-	-	Y	-
Monmouthshire County Council	-	-	-	-	-	Y	-	-	-	-	2007	5	Y	-	-	-	-	Y
Carmarthenshire County Council	-	-	-	-	-	Y	-	-	-	-	2008	3	Y	-	-	-	-	Y
Brecon Beacons National Park	-	-	-	Y	-	-	-	-	-	-	2007	14	Y	-	-	-	-	Y
<b>NORTHERN IRISH</b>																		
Environment Agency, Northern Ireland - Bats and Development	-	Y	-	-	-	-	-	-	-	-	2008	36	Y	-	-	-	-	Y
<b>ENGLISH</b>																		
EN Northumbria Supplementary Guidance	Y	Y	-	-	-	-	-	-	-	-	2004	17	Y	-	-	?	?	Y
Test Valley Borough Council	-	-	-	-	-	-	-	-	Y	-	2006	2	-	-	Y	-	-	Y
Peak District National Park Authority	-	-	-	-	-	Y	-	-	-	-	2005	17	-	Y	-	-	-	Y
Ryedale District Council, N Yorks	-	-	-	-	-	Y	-	-	-	-	?	12	-	Y	-	-	-	Y
Rochford District Council, Essex	-	-	-	-	-	-	-	-	Y	-	2007	2	-	Y	-	-	-	Y
Devon County Council <sup>3</sup>	-	-	-	-	Y	-	-	-	-	-	?	3	-	Y	-	-	-	Y
Aylesbury Vale District Council	-	-	-	-	-	Y	-	-	-	-	?	4	Y	-	-	-	-	Y

	type of guidance									date	pages	subject			sphere		
	good practice guidance	government / SNCO guidance	Supplementary Planning Guide (SPG)	Planning Advice Note (PAN)	internal advisory note	advisory note / leaflet	Unwritten'	research report	supplementary declaration form			bats	EPS / protected species	biodiversity	UK wide	national	Regional / local
Tower Hamlets Borough Council	-	-	-	-	-	Y	-	-	-	?	2	Y	-	-	-	-	Y
Norfolk County Council	-	-	-	-	-	Y	-	-	-	2008	12	Y	-	-	-	-	Y
Durham <sup>4</sup>	-	-	-	-	-	Y	-	-	-	2001	1	Y	-	-	-	-	Y
Suffolk County Council	-	-	-	-	Y	-	-	-	-	2008	1	-	-	Y	-	-	Y
West Yorkshire <sup>5</sup>	-	-	-	-	-	Y	-	-	-	2008	3	Y	-	-	-	-	Y
Teignbridge District Council	-	-	-	-	Y	-	-	-	-	2006	1	-	-	Y	-	-	Y
South Oxford District Council	-	-	-	-	-	Y	-	-	-	?	2	-	-	Y	-	-	Y
Dartmoor National Park Authority	-	-	-	-	-	Y	-	-	-	2001	3	-	-	Y	-	-	Y
<b>Totals (n = 32)</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>14</b>	<b>1</b>	<b>1</b>	<b>2</b>	see table	<b>15</b>	<b>6</b>	<b>11</b>	<b>3</b>	<b>3</b>	<b>27</b>	

Y = triggered, - = not applicable, ? = not clear if applicable / undated.

#### Notes

1. The Tayside Biodiversity Partnership covers the area of three LPAs: Dundee City Council, Perth and Kinross Council, and Angus Council.
2. This is an unwritten protocol, and so it is unclear to anyone beyond the relevant staff what it would include.
3. Subsequent to this analysis, new guidance is available from this Council as part of the 1App Validation Local requirements
4. The Durham Bat group document states it is used by the councils in the former County Durham.
5. Part of West Yorkshire Joint Services this covers the Bradford, Calderdale, Kirklees, Leeds and Wakefield District Councils.

#### References

BCT 2007a; Mitchell-Jones 2004; Scottish Executive 2001; Tharme 2006; Davidson 2008; Willet 2008; Ogilvie 2007; Lloyd 2006a,b; S. MacPherson, pers. comm. 3 April 2008; FCS 2007; Anon 2005f; Anon 2006c; Jackson undated, in BCT/BMT Cordah 2005; Monmouthshire County Council 2009, 2007; Anon undated a; Anon 2007b; Higgins 2009; English Nature Northumbria Team 2004; Anon 2006d; Anon 2005d; Anon undated b; Anon 2007c; Anon 2004; Anon 2008; Scott 2009; Finnemore 2008; Jackson 2001.; Suffolk; WYE 2008; Anon 2005e, 2007d; Anon 2006e; Anon 2001c.

From this table it is clear that most available guidance protocols are very recent, and apply on a local or regional basis. The protocols used by respondents range from an unwritten screening process by an experienced (biodiversity) officer, to complex forms of pre-application guidance linked to an applicant-certified form which must be validated within the planning office, and from zero to over 80 pages.

A series of standard questions were used to interrogate the protocols and investigate their characteristics. These characteristics are discussed below, and a summary of the main findings are presented in Table 2.2.

### **Type of Guidance**

Guidance on bats and development is produced in various forms and by various bodies. A few published documents such as the Bat Mitigation Guidelines (BMG) offer guidance at a national level. Local guidance has been produced in various formats, e.g.: Supplementary

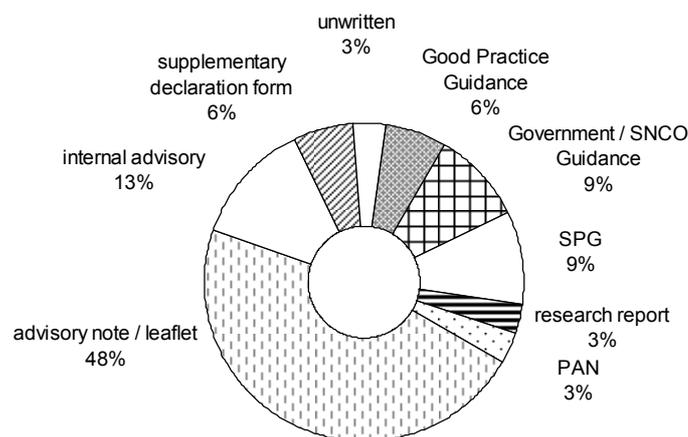
Planning Guidance (SPG) (Tharme 2006; Anon 2006c); Planning Advice Note (PAN) (Anon 2007b; Anon 2008); Practice Note (Anon 2005d).

The simplest level of advice is often a general note which may inform the developer or applicant of the possibility of needing to address issues relating to biodiversity, e.g. through a Local Plan Policy or in an applicants' guidance leaflet. Such leaflets are usually elective, and may be read only by interested parties, with most applicants paying them little heed.

In some areas the method used is an internal "informative" for the LPA or SNCO staff, or may be developed jointly, such as the internal validation guidance checklist note joint developed by Devon County Council and Natural England.

Some LPAs such as those in the former County Durham area simply adopt guidance devised by an NGO such as the local bat group (Jackson 1999). Indeed, some NGOs offer guidance on biodiversity and planning directly to applicants via their webpages or leaflets (e.g. Gwent Bat Group 2008).

Figure 2.1: Format of Screening Protocols (sample size, n = 32)



### **Form, Structure and Content**

For guidance to be effective it must be easily found by its intended audience, easy to read and understand yet sufficiently detailed and technical, and must also be identifiable as current and appropriate to the users' needs. These characteristics are reviewed below in sections considering:

1. Accessibility;
  - a. Dissemination;
  - b. Language;
  - c. Layout, Design and Structure;
  - d. Current relevance;
2. Scope;
  - a. Spatial scale (national / local);
  - b. Taxonomic coverage;
  - c. Target audience; and,
  - d. Inclusion of key development activities and site features.

## **Accessibility: language, design and structural tools, and publication media**

### Approach to dissemination of guidance

Is it sufficient for a LPA to produce or adopt guidance for applicants? Equally critical is for the applicants to come into contact with the guidance. Effective access to good advice is essential in allowing planning applicants to address the many diverse obligations placed upon them. This is no less significant in regard to biodiversity than it is in respect of other regulations. In a previous study, when asked if they knew where to access suitable natural heritage data, between 19% and 49% of LPA staff did not know (Heriot-Watt 2008). Thus the methods used by LPAs (or other organisations) to 'publish' and promote guidance need careful consideration.

There are only 2 possible routes of approach: potential applicants may come to the LPA directly (in person or via telephone) to request the relevant papers for their application, or they may seek such papers on the LPA website. Thus, awareness amongst LPA staff of the available guidance, and clear sign-posting of such guidance on the LPA website are desirable to ensure that potential applicants are properly informed prior to submitting their application.

In practice, some LPAs prefer not to offer explicit guidance on protected species prior to the submission of applications. This results from the practice of some developers to take action to remove potential issues with biodiversity, e.g. once they become aware of a possible bat roost, they might demolish the building in advance of submitting an application. For some planning officers this has evidently created an issue of lack of trust (personal observations). Once an application is received, the officers have some additional recourse in law as the application acts as a declaration of what the developer considers material. It is also then possible for the planner to visit and inspect the site.

Simple paper leaflets about bats and development were distributed to all planning applicants in Fife during the 1980s and 1990s. These were developed by Fife Bat Group with North-east Fife District Council, and later re-printed by Fife Council (personal observation). Some LPAs provide guidance to all applicants, clearly indicating that all applicants should take bats and biodiversity into consideration; they may also require every applicant to submit an additional declaration form.

Traditional approaches include the pre-application discussions, or printed leaflets and booklets (25%), but the rise of the internet has led to many web-based publications available for free download (56%). Some (42%) of respondent LPAs include guidance on bats on their Planning webpages, though rarely with a direction that all applicants consider bats. Often, the guidance is not directly linked to the planning applicants' information page and thus is likely to be overlooked.

Some LPAs (1%) take a more targeted approach and only send out such advisory information direct to applicants once their application has been received and been passed through a biodiversity or bat checklist which triggers concern over potential biodiversity issues. This latter approach relies for its success upon the effectiveness of the screening protocol used to trigger the advice. Developers can find this approach problematic, as it may result in the need for surveys being raised only *after* the planning application has been submitted.

For those developers who wish to provide information relating to bats or other protected

species, it can be difficult to find on LPA websites any indication of what is required. In some cases there is no guidance, but even where guidance exists it can be hard to locate, and is seldom linked directly to the main planning applications webpage. One example is the Perth and Kinross Council biodiversity guidance notes for householders and developers, which are listed as “Associated guidance notes” to download from the main Perth and Kinross Council “Submitting a planning application” webpage<sup>16</sup>.

### Language

It may seem petty to consider the title of a guidance document as of significance, but the effort invested by a potential reader depends upon such factors as personal relevance, convenience, and ease of comprehension, and front-end characters such as title and layout have a significant effect upon the attention spent. These principles are pervasive strands in the fields of interpretation and education, and perhaps even more dramatically demonstrated in advertising (e.g. Babbie 1994; Rogers 2003; Ham 1992; Veverka 1995).

Readability and ease of comprehension can be maximised with commonly used writing and design tools, such as using a low Gunning fog index (Gunning 1952), raising the Flesch Reading score or maximising white space, principles which could be applied in designing professional guidance on biodiversity and development management (see Table 2.2).

Table 2.2 Readability scores of guidance protocols

	fog index	comment	Flesch scores	comment
BCT Good Practice Guidelines (2007a)	14.5	suitable for technical documents	40	poor
Highland Regional council's guidance	15	suitable for technical documents	31	poor

1. Gunning Fog Index: Average score, derived from five randomly chosen passages of the protocol. An indication of the number of years of formal education that a person requires in order to easily understand the text on the first reading: 18 being graduate level and beyond, 15 being first year in tertiary education; The Bible, Shakespeare and Mark Twain all have Fog Indexes of about 6. Professional prose should aim almost never to exceed the upper limit of 18.

2. Flesch Reading score: Rates text on a 100-point scale; the higher the score, the easier it is to understand the document. Most standard documents aim for a score of 60 to 70.

The documents studied ranged from those with no title (Devon), through a clear and simply titled webpage (Gwent) to lengthy and complex titles requiring a degree of professional understanding (Peak District NPA). Most were clear in stating that they address *Planning* or *Development* issues concerning biodiversity, whether described as *bats*, *biodiversity*, or *conservation*.

### Layout, Design and Structure

Different layout designs have been employed for this implicit information transfer process ranging from simple prose advisory leaflets to multi-modal structured and graphic documents such as the Peak District NPA ‘Protected Species and Development’ note (Anon 2005d). These address differently the need for a guided route to decision making.

In 15 of the 32 protocols the structure was multimodal, with combinations of advisory text with flow-chart, checklist or other method. The most popular single approaches are a

<sup>16</sup> Perth and Kinross Council, Submitting a planning application <http://www.pkc.gov.uk/Planning+and+the+environment/Planning/Planning+-+applications+and+certificates/Making+a+planning+application/Applying+for+planning+permission/Submitting+a+planning+application+-+downloadable+forms.htm>, accessed 23 Dec 2009.

checklist (7/32) or advisory document (7/32). Usually the checklist is a simple list format, with features to watch out for, but in two cases weighting has been applied to provide stronger focus (BCT/BMT Cordah 2005, Monmouthshire 2007). The advisory documents vary from a very simple leaflet to extensive descriptions of the development screening process and legislative context. Other approaches include a single Stratified (tiered) flow-chart or 'decision-tree'. A few protocols combined advisory text with a checklist (2/32) or flow-chart (4/32).

advisory	8		
checklist	7		
advisory and flowchart	4		
advisory and form	3		
flowchart and checklist	3		
advisory and checklist	2		
stratified checklist	2		
advisory and checklist and flowchart	1		
weighted checklist	1		
unwritten ad hoc	1		
		rank order of all the modes used	
		advisory	19
		checklist	16
		flowchart	8
		supplementary form	3
		unwritten ad hoc	1

#### Currency (date of origin and date of revision)

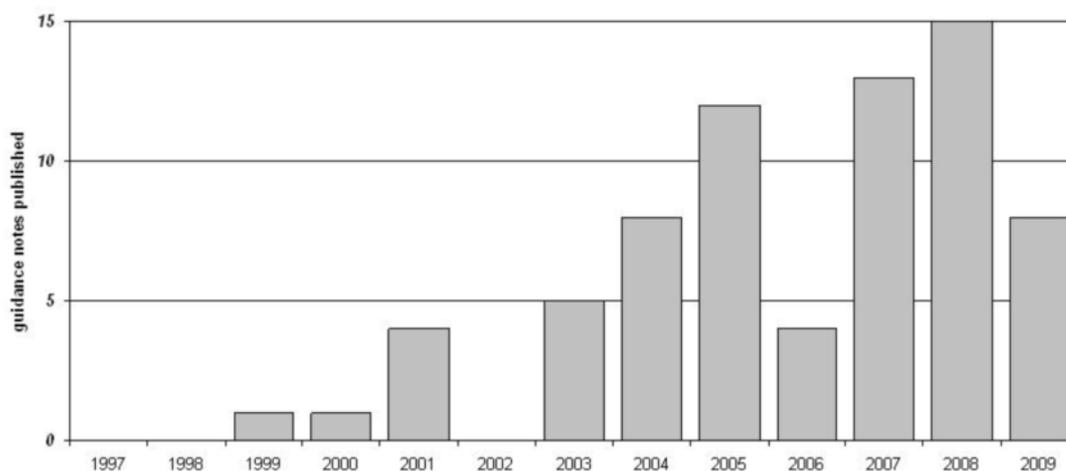
The legislation covering bats has changed relatively rapidly but has guidance kept pace? For some protocols and guidance, there is no date of publication, or version number, and those not expert in wildlife law may not know whether it is up to date.

The EU Habitats Directive was translated into the UK statutes in October 1994, providing protection for bats and other 'European Protected Species'. Although guidance for new legislation is sometimes produced concurrently with the new Act, it took 10 years before the first piece of national guidance was published on bats and development, the Bat Mitigation Guidelines. There has been a subsequent cascade into regional and local guidance, and the recent introduction of the local validation requirements with the 1App form has led to the inclusion of guidance by many LPAs, supported by the development of the Biodiversity Toolkit.

The trend in publication of guidance for development and bats is now getting confused by the revision and updating of guidance and protocols. Thus Ryedale District Council originally produced guidance in 2007, but this has been updated in 2009 to provide clearer guidance reflecting the Biodiversity Toolkit approach.

With so much guidance being undated, it is not possible to show a clear trend towards more guidance, but Figure 2.2 does show an apparent trend which parallels the rising trends shown in Figures 1.2 and 1.3 in Chapter 1.

Figure 2.2.: Number of biodiversity and planning guidance documents relating to bats published each year, 2001 – 2009 (NB data for 2009 represent only until May).



The inclusion of a publication or version date (present in 65% of Protocols), and identification of an author or publishing body (present in 22% of Protocols) are helpful tools for users to be confident in the current status of the document, and also allow for feedback to the author. The ideal approach is for the document to include a recommended citation, such as:

“Citation: Bat Conservation Trust (2007), *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London. ISBN 978-1-872745-99-2”.

## Scope

### Local/ National

The first national guidance to be published was the Bat Mitigation Guidelines (BMG) in 2004, from English Nature, and this has set the benchmark for other guidance, with an in-depth consideration of how bats and development interact. The BMG include detailed recommendations for methods of survey, reporting standards, and for the principles of mitigation for potential impacts on bat roosts. An increasing awareness followed, with LPAs seeking more development related bat surveys, illustrated by the exponential increase of search returns (Figure 2.2) for “bat survey” or “bat mitigation” on Google.co.uk.

National and local bodies started to develop local guidance to suit their geographic area, and the specific legislative framework in their area. In 2008, The Bat Conservation Trust published a Good Practice Guide for bat surveys, addressing the developing need for greater consistency and rigour of methodology and reporting for development bat surveys.

The recent introduction of a new standard planning form and advice across England and Wales has required each LPA to consider the issues that they would include as Local Requirements, and this has led to inclusion of biodiversity and bats in many cases, but as this process was concurrent with this study it is not possible to report on how well bats have been integrated into the new application requirements. There is clearly scope for monitoring of the impacts of changing guidance, and the downstream effects on conservation and economic aspects.

### Taxonomic coverage (Advice applies to)

Does each piece of guidance cover just bats and development, or a wider range of

biodiversity issues? Defra has produced guidance that solely targets bats and renovation of “traditional buildings” (Defra 2004). Guidance that addresses only bats and development can be more easily understood and applied, as it can be more concise and has an explicit application. However, there is a trade-off between providing separate detailed guidance for each specialist issue (e.g. for bats, for great crested newts, for otters, etc.) and the convenience of a single point of reference offered by holistic guidance with an overview of potential impacts on all biodiversity. The former may result in unreadable quantities of documents, but the latter in too little detail to effectively address each specific issue. Thus the question should be asked, “Is there enough detail presented to be useful to the applicant”?

#### Target audience

Guidance was assessed to consider whether there is a clear intended target audience. The needs of different user groups will vary, both in terms of technical guidance and in the written style. What may be appropriate for a professional technical audience, such as planners, SNCOs or consultants, may not be appropriate to smaller developers or householders. Indeed, without some indication, explicit or implicit, it may be unclear to a potential reader whether the document applies to their case.

In most cases the target audience is not clearly identified in the text. Of the 32 collated screening protocols, most (17) are written to address a wide audience, to include LPA staff, and developers of all kinds including householders, as well as third parties such as SNCOs or professional planning advisors and ecologists. A significant number (10) are addressed only to LPA planning staff, but only two documents appeared to be aimed solely at ‘developers’ and two at ‘householders’.

#### Key development site features and activities

From personal observation of the screening process and how guidance is used, it is clear that many users are uncertain about the types of applications where bats or biodiversity are material, or about what types of development activity or site feature should be considered of significance to bats.

Drawing a checklist of key factors from personal experience and the published materials, each protocol was considered to assess whether it would trigger for the factors on the checklist. The factors chosen for the checklist included likely bat roost features, high risk proposed development activities, and types of application. Responses were gauged as clear explicit inclusion of each factor (Y) or clear exclusion of factors (N), but where there was uncertainty or the inclusion could only be by implication (and it would be up to the user’s judgement) a response was recorded as “not clear” (?). Table 2.4 shows which protocols addressed each factor, and the results are summarised in Table 2.5.

Mostly, guidance and protocols take the pragmatic approach of using defined activities or site features to filter applications and simplify the decision making process.

Table 2.4 Response to Priority Development Site Features and Activities

	trees	demolition	renovation	loft conversion	outline application	wind turbines	bridges	bat habitat	lighting
<b>NATIONAL</b>									
BCT Bat Survey Guide	✓	✓	✓	✓	✓	✓	✓	✓	✓
EN Bat Mitigation Guidelines (BMG)	✓	✓	✓	✓	x	x	✓	✓	✓
Scottish Government	?	?	?	?	✓	?	?	?	?
<b>SCOTTISH</b>									
Scottish Borders Council	✓	✓	✓	✓	?	x	✓	✓	x
Aberdeenshire Council	✓	✓	✓	✓	?	x	✓	?	x
Highland Council	?	?	?	?	?	?	?	?	x
Falkirk Council	✓	✓	✓	✓	✓	✓	?	x	✓
Tayside Bio Partnership <sup>1</sup>	✓	?	✓	✓	?	?	✓	x	x
East Lothian Council <sup>2</sup>	?	?	?	?	?	?	?	?	?
Inverclyde, East Renfrewshire and Renfrewshire LBAP Partnership	✓	x	x	x	x	x	x	x	x
Cairngorms National Park Authority	✓	✓	✓	✓	✓	x	x	x	x
<b>WELSH</b>									
Pembrokeshire Coast National Park Authority	✓	✓	✓	✓	x	x	✓	?	x
Countryside Council for Wales	x	x	✓	✓	?	x	x	x	x
Monmouthshire County Council	✓	✓	✓	x	✓	x	x	x	x
Carmarthenshire County Council	✓	✓	✓	✓	?	x	✓	x	x
Brecon Beacons National Park Authority	?	?	?	?	?	x	✓	?	✓
<b>NORTHERN IRISH</b>									
Environment Agency, Northern Ireland - Bats and Development	✓	✓	✓	✓	?	✓	✓	?	x
<b>ENGLISH</b>									
EN Northumbria Supplementary Guidance Note	✓	✓	✓	✓	?	x	✓	✓	x
Test Valley Borough Council	✓	✓	✓	✓	✓	x	x	?	x
Peak District National Park Authority	✓	✓	✓	✓	?	x	✓	x	x
Ryedale District Council, North Yorkshire	✓	✓	✓	✓	✓	x	✓	x	x
Rochford District Council, Essex	✓	✓	✓	✓	?	x	x	x	x
Devon County Council <sup>3</sup>	x	✓	?	?	?	?	?	?	x
Aylesbury Vale District Council	x	✓	✓	✓	?	x	✓	x	x
Tower Hamlets Borough Council, London	✓	✓	✓	✓	?	x	x	✓	x
Norfolk County Council	✓	?	?	?	?	x	✓	x	x
Dartmoor National Park Authority	x	✓	✓	✓	x	x	x	x	x
Durham Bat Group <sup>4</sup>	✓	?	?	?	?	x	?	?	x
Suffolk County Council	?	?	?	?	?	?	?	?	?

	trees	demolition	renovation	loft conversion	outline application	wind turbines	bridges	bat habitat	lighting	
West Yorkshire Ecology <sup>5</sup>	✓	x	x	x	x	x	x	x	x	
Teignbridge District Council	✓	✓	✓	✓	?	✓	✓	✓	✓	
South Oxfordshire District Council	✓	?	?	?	?	x	?	x	x	
	Yes	23	20	21	20	7	4	15	6	5
	No	4	3	2	3	5	22	9	15	24
	Not clear	5	9	9	9	20	6	8	11	3

KEY: ✓ = triggered, x = not triggered, ? = not clear if would trigger (n = 32).

1. The Tayside Biodiversity Partnership covers the area of three LPAs: Dundee City Council, Perth and Kinross Council, and Angus Council.

2. This is an unwritten protocol, and so it is unclear to anyone beyond the relevant staff member what it would include.

3. Subsequent to this analysis, new guidance is available from this Council as part of the 1App Validation Local requirements

4. The Durham Bat Group document is used by Councils in the Durham area

5. Part of West Yorkshire Joint Services this covers the Bradford, Calderdale, Kirklees, Leeds and Wakefield District Councils

That Outline Applications are not clearly covered by most protocols is surprising; only 8 of 32 protocols are clear in addressing outline applications, with 19 unclear on the need, and 5 clearly not requiring bats to be considered at this stage. This omission has now been addressed in the new standard 1App form and Guidance Notes, which match the approach of the Full Application form. Interestingly the majority of guidance relies upon the applicant making suitable assessment, though in only few cases are they asked to provide indication or declaration that this has been completed. The new 1App Standard Application Form has addressed this in England and Wales with question 14 “Biodiversity and Geological Conservation”, completion of which is required for the application to be accepted as valid. In only a few cases does the LPA verify the claimed status regarding bats: in one case the ecologist visits every property,

Table 2.5 Prevalence of guidance for various proposal activities or site features

features triggering guidance	guidance covering each feature						totals
	yes	no	not clear				
Tree felling/ surgery	24	75.0%	4	12.5%	4	12.5%	32
Demolition	21	65.6%	4	12.5%	7	21.9%	32
Renovation	22	68.8%	2	6.3%	8	25.0%	32
Loft conversion	21	65.6%	3	9.4%	8	25.0%	32
Outline application	8	25.0%	5	15.6%	19	59.4%	32
Wind turbines	4	12.5%	23	71.9%	5	15.6%	32
bridges	15	46.9%	9	28.1%	8	25.0%	32
Bat Habitat	9	28.1%	13	40.6%	10	31.3%	32
Desk study indicated	15	46.9%	10	31.3%	7	21.9%	32
Lighting	6	18.8%	21	65.6%	5	15.6%	32
Applicant-certified	21	65.6%	9	28.1%	2	6.3%	32
Verified/ Validated	10	31.3%	14	43.8%	8	25.0%	32
Total	176		117		91		384
	46%		30%		24%		

For some development activities the potential for impacts on bats is well understood but also highlights the lack of clarity and consistency for other activities; thus most protocols include reference to tree felling or surgery, renovation, demolition, and loft conversions, though bridges are still somewhat overlooked and other activities remain poorly addressed, such as lighting or wind turbines.

Taking an overview of all these guidance documents, in 24% of cases the guidance is 'Not Clear', a worryingly high level of uncertainty about whether the protocols cover the key factors. Clear positive responses accounted for 46%, and 30% of cases are clearly excluded from the protocols. Taking all these protocols into account, a planner or developer would be sure what to do in fewer than 50% of instances.

Emerging development issues are not well served by the published guidance and protocols. The erection of wind turbines is addressed by only four protocols. Similar issues will arise where new insight reveals additional impacts of existing activities, such as from sound and light pollution, or road-kill of bats. In the 1990s many bridges were upgraded in preparation for compliance with the EU Directive which allowed 44-tonne lorries, however the significant use made by bats of crevices in bridges (Section 1.5.2) was largely overlooked and even in 2009 bridges are still only considered by <50% of protocols.

### 2.3 Summary

Strategic updating of the national planning framework includes standardisation of the 'application package'; the new application form incorporated a question about impacts upon biodiversity, but this approach is not universal across countries or development types, and does not guarantee due scrutiny, access to expert support staff, training or the use of available resource materials.

Thus, despite the intent of high-level international commitments and legislation giving bats and roosts absolute protection, there is a failure of delivery: current practice and tools are of such variable quality and consistency as to risk significant negative impacts at the population scale.

Available guidance and screening protocols were reviewed, varying widely in quality, specificity, sensitivity, scope and modes of presentation. Coverage by protocols of development activities and site features is often poor with many situations not adequately addressed. Challenges remain in applying good design principles, to achieve workable protocols and guidance that are also robust against obsolescence.

There is poor availability of relevant distributional biodiversity data, especially for bats, and what data do exist are often not readily accessible. Most LPA staff lack expert training or understanding of the conservation biology of bats, how bats use landscape and building features. This is being exacerbated by the move for SNCOs to draw back from much planning casework, deferring the role to LPAs which themselves are currently subject to severe budget cuts.

Within this rapidly changing field the BCT Bat Surveys Good Practice Guide makes a strong contribution, and the development by ALGE of the online Biodiversity Toolkit and the Natural England Standing Advice show great potential.

Guidance and protocols are varied in format and content with few consistent features, and their application is patchy. The next chapter investigates the functionality of these protocols.

### 3 Testing the Performance of Screening Protocols

To investigate the screening process, a range of available guidance was screened with test data representing planning applications and known roosts. What features appear of key significance to identify a potential issue with bats? How robust and defensible are the characters used in screening protocols; are the results misleading?

An effective screening protocol should identify a high percentage of known bat roosts, though it would not be realistic to expect 100% success. The LPA screening process is intended to maintain “Favourable Conservation Status” of bat populations, so it might be reasonable to expect to identify perhaps 80% of development site roosts overall. How do current protocols perform?

#### 3.1 Method

Tests were made of the output of various representative protocols, using two data sets: planning applications lodged in Fife; and, known bat roost buildings in Fife. These two data sets are described in more detail in Sections 3.1.1 and 3.1.2 below. The screening protocols tested were:

- the Natural England Bat Mitigation Guidelines;
- a weighted checklist from Gwent Bat Group, presented in a CCW report;
- the Bat Conservation Trust Good Practice Guide / ALGE Biodiversity Toolkit.

##### 3.1.1 Dataset One - Planning applications submitted to Fife Council

Information was collated about the planning applications submitted to one unitary LPA, Fife Council, through their online planning website<sup>1</sup>. During 12 months from 1<sup>st</sup> August 2007 to 31<sup>st</sup> July 2008, two week-long sample periods were selected at random, 6<sup>th</sup>-12<sup>th</sup> August 2007 and 16<sup>th</sup>-22<sup>nd</sup> March 2008, to provide trial planning applications for the study. There were 3556 applications in total<sup>2</sup>, with an average of 299 per calendar month (range 185 – 349, Figure 3.1), and a weekly average of 68 (sample weeks: August, 55, and March, 64).

The study considered individual ‘development sites’. Where two applications applied to a single site, such as paired Full and Listed Building Consent Applications, these were treated as one application. Applications for variation or renewal of consents for a previous application were not included. Thus, the samples analysed contained 52 (August) and 59 (March) application sites.

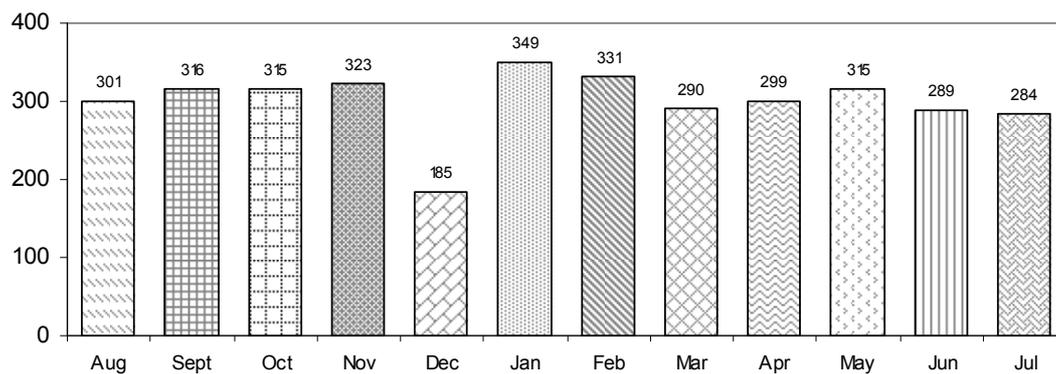
The details available online included the full postal address, and map location, and plans of the existing site and property and of the proposed changes. For some applications the online information also included consultee comments (e.g. SNH) or copies of bat survey reports submitted to the planning service.

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<sup>1</sup> <http://planning.fife.gov.uk/online>

<sup>2</sup> Fife Council determined 3678 applications in 2006-07, of which 1944 (52.9%) were householder, 128 (3.5%, national mean 3.8%) major (therefore 3550 minor), 347 LBC (9.4%, national mean 5.7%); only 6 (0.2%, national mean 15%) enforcement cases were taken up, though 12 enforcement notices were issued (0.3%, national mean 1.6%). These figures were comparable for the previous 2 years (3621 in 2005-06, and 3724 in 2004-05). Comparison with national figures: Fife received twice the mean applications per Scottish LPA is 1606 (54597 PAs across 34 LPAs). (Scottish Government 2008c).

Figure 3.1 Monthly totals of Planning Applications submitted to Fife Council.



To characterise the range of applications submitted, keywords were defined from personal experience, e.g. demolition, roof works, farm building conversions (Table 3.1). Keywords were used to search the planning applications and ensure the samples were representative of the whole year, and to identify which would have most potential for harm to bats (Table 3.2 Perceived risk level).

Table 3.1 Types of development activities and site features involved in applications for development consents received by Fife Council Planning Services, as characterised by keywords.

Activity:	12 months		week 1, August		week 2, March	
	number	%	number	%	number	%
Total number of applications	3556	100	55	100	64	100
listed building consent	328	9	4	7.3	6	9.4
outline	166	5	2	3.6	5	7.8
extension	991	30.6	16	29.1	23	35.9
internal alterations	320	9.9	7	12.7	1	1.6
non-illuminated signage	67	2.1	1	1.8	4	6.3
erection new building	798	24.6	10	18.2	1	1.6
conversion, renovation, restoration	93	2.9	1	1.8	4	6.3
steading, stables, outbuilding	32	0.9	1	1.8	2	3.1
windows, patio doors	227	7.0	1	1.8	4	6.3
conservatory	222	6.9	5	9.1	7	10.9
dormer, roof-lights	229	7.1	4	7.3	2	3.1
alterations to roof, attic, re-roofing	304	9.4	1	1.8	5	7.8
demolition	124	3.9	3	5.5	1	1.6
external illuminations, new lighting	112	3.5	4	7.3	0	0.0
landscaping, site clearance	100	3.1	0	-	0	-
wind turbine, wind farm	12	0.4	4	7.3	6	9.4
EIA	3	0.3	2	3.6	5	7.8
major	3	0.1	7	12.7	1	1.6

Activities involved in some applications could not be accurately ascertained from the Subject Description of the application, due to vague or basic wording. There appears to be no requirement for standard wording in a Subject Description, thus placing restrictions on the usefulness of Subject Descriptions for screening. For example, “residential housing development” may equally be found to apply to the following three instances:

- I. the demolition of an old property, felling of trees, creation of new road access and

- construction of a new house;
- 2. construction of a new house on an empty plot; or
- 3. a new 133 house residential estate and associated roads, landscaping, lighting, etc.

Amongst the sample Applications, the 'Application Title' was generally quite descriptive of the actual activities involved in the proposals, e.g.

- Installation of street lighting and columns;
- Erect two storey side extension and single storey rear extension to dwelling house;
- Change of use and alterations to industrial unit to form flatted dwelling and installation of two dormers to front and two dormers to rear;
- Listed Building consent for internal and external alterations to dwelling house;
- change of use and extend agricultural building to form dwelling house;
- erection of new dwelling house (demolish farm building).

A small number of applications were less clear, e.g. Outline permission for residential development (4 units) which in fact involves demolition of a range of farm buildings and change of use of agricultural ground. The word 'Alterations' was often used where the title gave little idea of the extent and nature of work proposed, e.g. Alterations to dwelling house.

Fife Council required a bat survey for only one planning application submitted and no other bat surveys were submitted by the other applicants during the two sample weeks (Mark Russell, Fife Council pers. comm.); the bat survey related to redevelopment of an agricultural steading, and found bats (Echoes Ecology 2007).

Table 3.2 Development activities sorted by keywords, grouped by perceived potential for harm to bats. N.B. Data are sums of keyword searches at each risk level, not actual numbers of applications: some applications will trigger for multiple keywords.

Risk Level <sup>1</sup>	12 months		week 1, August		week 2, March	
	number	% <sup>2</sup>	number	% <sup>2</sup>	number	% <sup>2</sup>
HIGH	903	25.4	10	16.9	16	28.1
MEDIUM	2600	73.1	39	66.1	33	57.9
LOW	1346	37.9	17	28.8	20	35.1

Notes

1: Risk level was defined subjectively from personal professional observations, and experience. The activities in each defined category as presented in footnote <sup>3</sup>

2: Percentages are calculated against the total number of applications in the period, i.e. 25.4% of applications overall include operations relating to the 'high risk' keywords, etc.; Within a random sample of 637 applications, high risk keywords trigger for 21.4%, medium risk trigger a further 55.6% and the remaining 20.6% relate to only low risk keywords.

### 3.1.2 Dataset Two - Matched Roosts in Fife

Since the birth of Fife Bat Group in 1983, records have been collated of enquiries about bats and bat roosts, usually relating to a householder seeking advice. The standard methods for

<sup>3</sup> HIGH RISK: conversion, renovation, development; steading, stables, outbuilding; dormer, roof-lights, alterations to roof, attic, re-roofing; demolition; landscaping, habitat works, site clearance; mineral extraction, formation of quarry; wind turbine, wind farm; EIA; major;

MEDIUM RISK: windows, patio doors; extension; internal alterations; erection new building; external illuminations, new lighting; outline applications;

LOW RISK: Conservatory; certificate of lawfulness, change of use; non-illuminated signage; minor external alterations, ATMs, re-painting; car parking, fences, walls, flagpoles, decking, CCTV; renewal of consent / variation of conditions; masts.

such visits and subsequent recording of details were set out in the *Bat Workers' Manual* (Mitchell-Jones 1987). Scottish Natural Heritage currently provide an advice service to householders with bats, which was previously provided by the local bat group, and the current database is shared between SNH and FKBG. Contracted bat-workers make a visit to the property, investigate the situation and provide advice through the local SNH area officer to address the house-holders' queries. Most bat roosts discovered through this advice scheme are inspected only at the initial enquiry, and many records date from 10 or more years ago. Often a visit is required urgently, to deal with a bat trapped in a room, or a baby or juvenile bat in need of care. Some visits are requested when no bats are actually present in the roost. Thus, records are often incomplete, drawn from a single sub-optimally timed visit, with no confirmed species, count, or indication of the type of roost (i.e. maternity nursery, mating roost, hibernaculum, etc.). Emergence surveys at a few of these sites provide some scant data on population numbers and trends.

The database contains 374 records of roosts in buildings, which makes it a suitable comparison dataset to the planning applications selected from Fife Council. A known roost was selected comparable to each planning application site in Dataset One, closely matching the geographic location (identical or adjacent postcode areas) and building form (e.g.: industrial unit; farmhouse; 2-storey council house; etc.). Suitable matches could not be found for a small number of planning application sites, such as industrial sheds, thus the "matched roost" database contained 85 sites.

The address of each known roost in the database was checked in the online planning website, revealing that 32% of known roost sites in Fife (i.e. the building or its curtilage) had been subject to at least one planning application, and in one case the entire building has been demolished (apparently without any attempt at bat survey or licence or mitigation). Some sites were the subject of multiple planning applications, and thus the total number of planning applications at known roost sites between 1998 and 2007 was 120, or c. 1% of all planning applications.

## 3.2 Results

The results of screening sample protocols with trial data are presented in the following two sections.

### 3.2.1 Protocol Testing Results: EN Bat Mitigation Guidelines

The Bat Mitigation Guidelines (BMG) (Mitchell-Jones 2004) address all stages from the decision whether survey is needed, through survey methods and reporting, to mitigation and monitoring. They were intended as a "record of English Nature's approach to best practice".

These guidelines support balanced and proportionate assessments of potential development impacts on bats. The user is guided to make a consideration of the development site in its habitat context and to assess how the proposed work activities may impact upon bats. Extensive information is presented including bat ecology, relevant legislation and policy, survey methods and standards, impact assessment, mitigation. The BMG underlines a range of good practice principles:

- the presence of a protected species is a material consideration when the authority is considering a development proposal;
- the developer is responsible to demonstrate presence or absence of bats on any site at which works are proposed;

- early consideration of bats is more cost-efficient, and better conservation;
- guidelines provide generic advice: decisions should be made on a site-by-site basis;
- survey reports and mitigation proposals must be clear and allow the reader to quickly understand the key points;
- approach should be proportionate, practical and evidence-based;
- there should be no net loss of roost sites;
- mitigation should aim to avoid impacts, and compensation should aim to replace like with like for unavoidable impacts;
- a monitoring plan should check the population responds favourably to the mitigation;
- the long-term security of the population should be assured.

The intent of the screening guidance in the BMG is to help categorise the risk level for development sites. Thus, it would be hoped that the table of ‘Factors affecting the probability of bats being present’ would serve as a checklist to parse the stream of received applications into Low, Medium and High Risk categories. This is not apparent in the test results.

A simple reading of the guidance shows the primary discriminant to be the *likely presence of bats* at the development site. As it is apparent that bats are very widespread in the landscape (see Section 1.2) this tends to trigger for almost every application (Table 3.3).

This presence-absence dichotomy also fails to include the possibility that bats are present or are likely to be present but are assessed as likely to suffer no impact (and thus no survey is required).

By interpreting the question as “whether bats are likely to be roosting on the site” or “highly unlikely to be roosting on site” then it may be possible to narrow the focus to sites with high risk of use by bats, but this begins to require some specialist understanding of the factors which affect probability of use by bats.

Table 3.3 Outcome of screening sample planning applications, and matched bat roosts with the BMG

	6-12 August 2007 (n = 53) †		16 - 22 Mar 2008 (n = 59) †		Average %
<b>bats likely (i.e. survey required)</b>	42	79%	58	98%	88.5%
<b>bats highly unlikely</b>	11	21%	1	2%	11.5%
	August matched roosts (n= 46) ‡		March matched roosts (n=40) ‡		Average %
<b>bats likely (i.e. survey required)</b>	46	100%	39	99%	99%
<b>bats highly unlikely</b>	0	0%	1	1%	1%

† In March although 64 applications were lodged, 5 application sites had paired applications for Full Consent and Listed Buildings Consent, thus were treated as single sites, thus 59 were screened with the protocol. In August, of the 55 applications there were 53 development sites to screen.

‡ Of the 112 sampled development application sites, it was not possible to match 26 sites with suitable roosts, thus n=86 for matched roosts.

The BMG lists factors influencing the likelihood of use by bats (Mitchell-Jones 2004:22, Table 5.1 Factors affecting the probability of bats being present), to help guide an objective assessment of the potential risk of presence of bats. However, combining such positive and negative factors into one overall assessment is surely challenging for a lay reader, when even

experts may not agree. Factors include vague terms such as “close to woods” – what are to be considered as “woods” and what constitutes “close”? Inevitably, significant subjectivity must be applied.

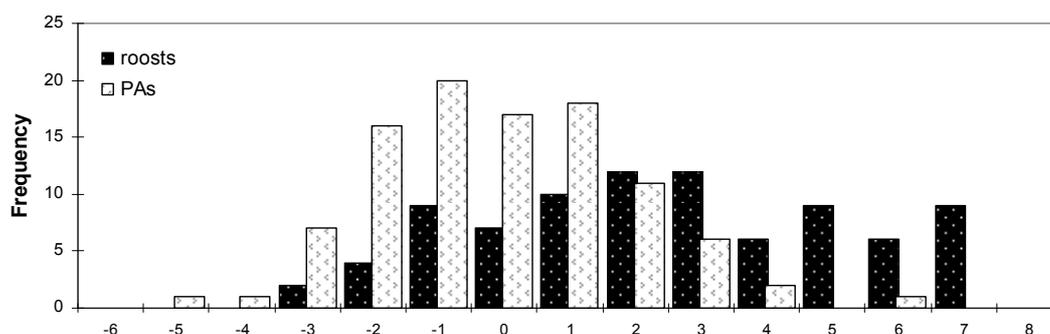
The influence of these factors was investigated by introducing a simplistic, additive approach, with a numerical conversion of each factor applicable for a site, tallying +1 for any positive factors making the site more likely to hold bats, and -1 for negative factors. The factors listed in BMG Table 5.1 are not matched and do not lend themselves easily to this. Nonetheless, an attempt was made to test a simple additive comparative approach. Such an approach could also mask the variation in significance of factors between sites that may otherwise outweigh an equal number of opposite factors, as illustrated below (Table 3.4).

Table 3.4 Worked example of planning application screened with the BMG

site	+ve factors		-ve factors		
Modern cottage in village location, works proposed to extend ground floor	Close to woods	+1	Modern build	-1	
	Close to water	+1	Urban / semi-urban	-1	
	Roof warmed by sun	+1	Disturbed site	-1	
		+3		-3	<b>sum score</b>
					0

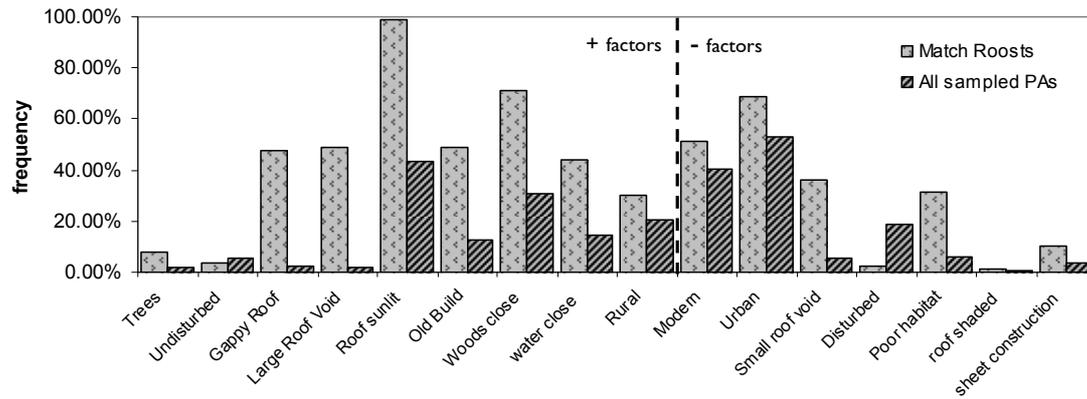
Further investigation of the details shows that the works proposed in this example involve three separate extensions, but make no impact on roof spaces, or the upstairs, and so are of quite low potential impact upon bats. However, the close proximity to water and woods increases the risk of a roost being present in the building. This highlights the importance of including in screening an assessment of the proposed development activities and not just considering the features of the development site.

Figure 3.2 Additive Sum scores for sample Planning Applications; PAs (mean, -0.67), Matched Roosts scores are positively skewed (mean, 2.50).



The BMG table of factors is biased towards positive factors (11:9 for buildings, 5:2 for trees, and 5:4 for underground sites), which may lead to estimation of higher risk levels; nine positive factors were recorded for the test sites, but only seven negative factors, creating an in-built positive bias. The additive scores for roost sites (mean 2.50) were positively skewed compared to PAs (mean -0.67) (Figure 3.2), but most factors, positive or negative, were more frequently triggered for the roosts (Figure 3.3) so these factors show only moderate specificity and sensitivity (see Section 6.2.2).

Figure 3.3 Comparison of frequency of BMG trigger factors between PAs and Matched Roosts.



Perhaps greater discrimination could be achieved by designing such a table with matched pairs of factors, or using a rating scale. Use of Likert scales (Likert 1932) might be especially helpful in assessing qualitative variables such as level of disturbance, e.g.: Question, “How often is the site disturbed?”, Answer choices, “hourly – daily – weekly – monthly – less often”. By making the question specific to the area(s) of the development site where works are proposed the assessment can be made more relevant.

This problem affects all protocols where qualitative and subjective decisions are the major arbiter of risk assessment. A protocol aimed at a wide audience should aim to offer tools for objective assessment, and to guide the user to seek specialist input where necessary.

### 3.2.2 Protocol Testing Results: Gwent Bat Group

The “Assessment form (trigger list) on whether a redundant building, barn or agricultural outbuilding is likely to be occupied by bats” is a weighted trigger checklist with a single page of simple advice, created in 2003 by Ian Rabjohns of Gwent Bat Group (BCT/BMT Cordah 2005). I chose to test this protocol, as a weighted checklist appears to offer a sophisticated way of reducing subjectivity in assessing the risk of use by bats (Scriven 2005). This protocol is referred to as “GBGP”.

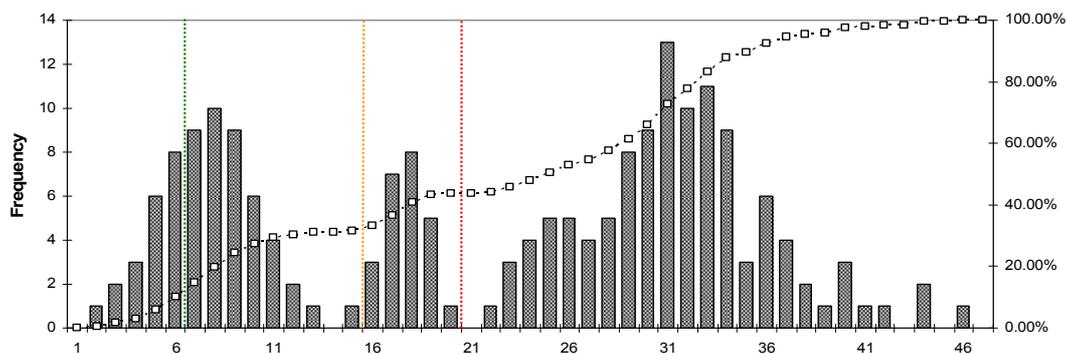
The GBGP is intended for use by the planning department to assess non-dwelling-house buildings. It asks that a set of clear photographs accompany the application, showing internal and external views of all building details. Questions are asked about the construction details of the proposed development site, with the answers varying in value. The maximum possible point score is 46, and the outcomes are divided into three categories, as below:

- |         |   |  |
|---------|---|--|
| 0 - 15  | ⇒ | “no bat survey unless evidence of bats exists in the locality”                                       |
| 15 - 20 | ⇒ | “the planning authority will make a brief inspection prior to advising whether a survey is required” |
| 21 – 46 | ⇒ | “an ecological survey for bat use is required”   |

Confusingly, a fourth category is created in the notes with the advice that “Any building that scores at least six points should be the subject of an appropriate ecological survey to assess the nature of the roost and access point(s) or other bat activity, the extent to which the development will affect the bats and how this can be mitigated or avoided.”

In an ideal case, the scores would divide into three discrete sub-populations reflecting the above categories, as illustrated in Figure 3.4. The orange and red lines indicate the division of the scores into the three main categories, and the green line the additional fourth.

Figure 3.4 Histogram of an idealised score distribution from the GBGP weighted checklist



This checklist does not apply to all proposed developments, as it only addresses scoring for building construction details. For example, the following cannot be scored: installation of street lighting; repair to boundary walls; erection of a satellite dish; new buildings on a green-field site. Indeed, it was only designed to cover old agricultural buildings, but has been adopted for all application sites. For the August and March PA samples respectively, 19 of 57, and 18 of 59 planning applications considered did not relate to a building, so effective sample sizes were 34 and 41 respectively, failing to address 31.9% of sites. Since all 86 of the matched roosts were buildings, there were none for which the GBGP was not applicable.

In determining the score for each planning application, various assumptions had to be made, as there is limited information in the available application papers. Thus, construction materials and other details had to be extrapolated from the style, and location of the building, using my experience of surveying buildings for bats. Some questions could not be answered satisfactorily (e.g. are cracks/ holes present?; or is a cellar/ undercroft present?). These problems would equally be faced by a planning officer (or advisor) using this checklist, though the applicant or their agent would have access to the site to check details. In such cases the question was scored as zero.

Figure 3.5 Frequency Histogram of GBGP Scores for Planning Applications (all applicable, n= 77) and Matched Roosts (all, n = 86).

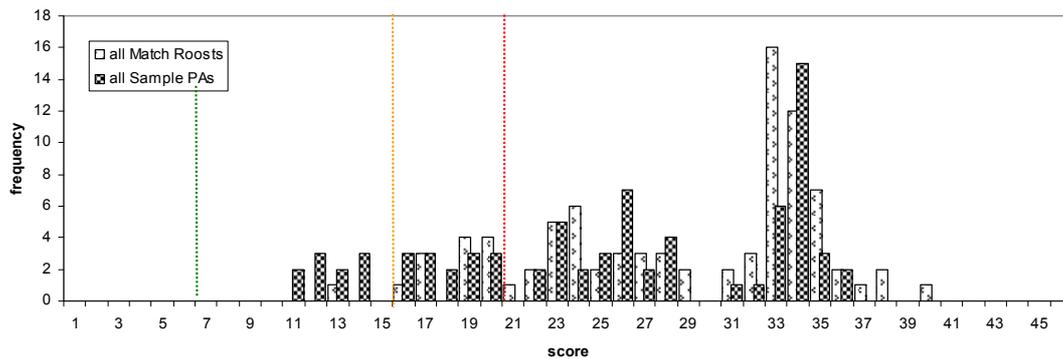
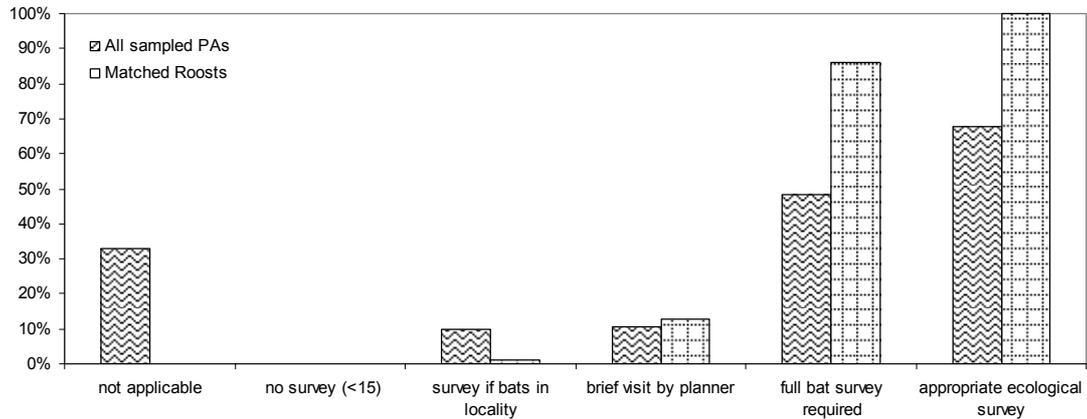


Figure 3.5 clearly shows that, for both PAs and Roosts, the scoring divides the scores into groups, but the separation is poor and the groups do not reflect the intended scoring clusters. No sites fell into the lowest category, and there was no clear distinction of the third category from adjacent categories; while the top category included >50% of all applications and >50% of the range of scores.

The weighting is sometimes imprecise: a 2-storey building (10 points) with intact roof (+8 = 18) rates a survey, thus an otherwise unsuitable building, e.g. a barn with poured or sheet concrete walls and roof, rates survey despite offering very poor opportunities for roosting bats. Contrarily, an extensive set of single storey, stone built barns, with corrugated metal (but not intact) roofs on softwood timber frames, set in a landscape of hedges, woods and water, but >10m from these habitats could score as low as 12.

This protocol places only low value on proximity to potential bat habitat, with only one point for being within 10m of wood/ hedgerow/ water, and two for rural location (one for urban fringe/ village). This difference from the two other protocols tested may reflect the perceived difficulty in specifying what habitat is important, and the presence of many pipistrelle colonies in urban or semi-urban habitat.

Figure 3.6 Comparison of GBGP scoring category outcomes between Planning Applications and Matched Roosts.



That this screening protocol was not applicable to 31.9% of applications highlights the importance of a careful protocol design that ensures wide application to potential developments. Scoring categories should be unambiguous: 67.9% of PAs rated “an appropriate ecological survey” but 48.2% scored enough to rate “an ecological survey for bat use” (Figure 3.6).

Although this screening protocol design is advantageous in being short, easy to understand and simple to use, ambiguity in the scoring system leads to poor resolution in practice, and the focus on features relevant to older agricultural sites limits its application.

A revised version of this weighted checklist was in use by Monmouthshire County Council in 2009, available from their planning webpages. Advice on “Submitting an application for a structure potentially used by bats” identifies “conversions of traditional rural (and in some cases urban) buildings, demolition, dwellings with features that could be used by bats” as requiring submission of a completed “Bat Survey Assessment” and site photographs, and warns that failure to include sufficient information will invalidate the application (Monmouthshire County Council in 2009). The Bat Survey Assessment document contains Guidance on survey and report contents as well as the checklist. These requirements are underlined in the validation requirements for full and outline applications. The revisions to the checklist<sup>4</sup> are minor and not likely to significantly affect its effectiveness.

<sup>4</sup> An additional question is asked: Is there a felt membrane lining the roof?, yes = 2; and there is a revised scoring scheme: >10 = no bat survey required unless evidence of bats in locality; 10-15 = MCC will check photographs and advise if survey needed; 16+ = bat survey must be submitted.

### 3.2.3 BCT Good Practice Guidelines / ALGE Biodiversity Toolkit

In 2007 the Bat Conservation Trust published “Bat Surveys – Good Practice Guidelines” (BCT 2007a) with the aim to encourage good practice in the standard and consistency of bat surveys. It is intended as guidance for those commissioning, undertaking or reviewing bat surveys. As with the BMG, the intent is to provide a framework of expert information “to be interpreted and adapted on a case-by-case basis”. In parallel ALGE have been working with a range of organisations to develop a nationally adopted ‘Biodiversity Toolkit’, to be made available via the internet Planning Portal. The draft version of the toolkit includes a revised version of the criteria used by BCT: specific mention of ponds has been cut, and the trigger distance between development sites and aquatic habitat has been reduced to 200m in all cases, thus reducing sensitivity where large water-bodies are 200-400m or where small ponds are <200m away (ALGE 2007).

A brief summary of relevant legislation and policy leads on to detailed review of the reasons for and methods of bat surveys. Section 2.3.1 (BCT 2007a:12) considers how to determine if a survey is necessary, and Box 2.1 (BCT 2007a:13) provides a trigger list of features which affect likelihood of bat presence. Box 3.1 (BCT 2007a:21) gives an overview of the value of habitat and landscape features which might affect the likelihood of bats being present. Figure 3.1 (BCT 2007a:24) is a flow-chart of the decision process to resolve what level of survey effort is required.

Some key points made by these guidelines:

- Not to be taken as set in stone, but adaptable on a case-by-case basis
- Good overview of different types of survey purpose
- Don’t need to have prior record of bat(s) to need a survey
- Insufficient information at PA submission can make it Invalid, lead to delays, costs
- Bats are material consideration for all consentable activities
- Assessment of impacts on EPS must be made prior to determination of application
- Request for survey must be reasonable, and the effort spent proportionate
- The trigger list (Box 2.1) is very clear in its purpose: “where bats are likely to be present and where developers can reasonably be expected to submit a bat survey”
- Focuses not only on the development site features, such as old buildings or trees, but also to some extent on the areas actually affected by works
- The trigger list combines proximity to good habitat with potential roost features
- The trigger list is targeted to higher risk situations, e.g. where a population of a rarer species might be present
- Strongly recommends a site walkover, or scoping survey

Table 3.5 BCT / ALGE Guidance trigger list tested with Planning Applications and Matched Roosts.

Trigger factors	Sample size (n)	August PAs		March PAs		All PAs		All Matched roosts	
		52	%	59	%	111	%	85	%
Lighting of greenspace		1	1.9	0	0	1	1.0	n/a	-
Affecting woodlands, trees connected to water		0	0	1	1.7	1	1.0	n/a	-
Affects quarry, rock faces, etc		0	0	0	0	0	0	0	0
< 200m water (ALGE)		8	15.4	16	27.1	24	21.6	35	41.2
<200m small water or <400m large water (BCT)		12	23.1	18	30.5	30	27.0	56	65.9
Affects trees: old / large / with holes		0	0	0	0	0	0	n/a	-
Traditional agric. Building		1	1.9	1	1.7	1	1.0	16	18.8
<200m woods /water, and faced w tiles / wood		0	0	0	0	0	0	0	0
<200m woods or water, and pre-1960		2	3.8	0	0	2	1.8	4	4.7
<400m woods or water, and pre-1914		9	17.3	5	8.5	14	12.6	30	35.3
Pre-1914 with slates or gables		16	30.8	12	20.3	28	25.2	38	44.7
Underground sites		0	0	0	0	0	0	0	0
Bridges		0	0	0	0	0	0	0	0
Known roosts / bats on site		0	0	2	3.3	2	1.8	n/a	-
<b>Non-triggered</b>		<b>24<sup>1</sup></b>	<b>46.2</b>	<b>27<sup>2</sup></b>	<b>45.8</b>	<b>51</b>	<b>46.0</b>	<b>14</b>	<b>16.5</b>

Notes

1: Three bare sites with no buildings or trees; 14 post-1960 buildings; 5 industrial sheet-construction buildings; 1 flat roofed 20<sup>th</sup> C; and one age indeterminate.

2: Four bare sites; 15 post-1960; 4 industrial; 4 older but far from woods or water.

Many sites not meeting the trigger criteria were modern, post-1960 buildings (58.3% in August, 25.4% in March) which are perfectly suitable for use by either pipistrelle species. The matched roosts which failed the criteria were all post-1960 buildings and all over 400m from significant water and woodlands, suggesting that although these criteria may be very successful (84.5% triggered at least one criteria) a significant percentage of roosts will be missed (16.5% in this study).

### 3.2.4 Screening protocol user feedback

I used a series of Likert items to ask bat consultants (BCq11) about levels of satisfaction with available bat survey guidance documents. All scored over average, but only the BCT 2007 Good Practice Guide scored over 3.75 (satisfactory), with the 2004 EN Bat Mitigation Guidelines still coming very close at 3.65, a very good rating considering it is now 5 years old. Only 3 of 54 respondents considered it 'unsatisfactory', with 4 rating it 'not very satisfactory' which adds up to 13% unsatisfied, compared with 67% satisfied or very satisfied. Comments received included:

“many council planning ecologists have adopted the BCT Guidelines as 'Gospel' rather than merely 'Guidance' and expect costly, both economically and temporally, surveys to be carried out under the best conditions at the best times of year in all circumstances. When no bats are found or not as many as they would like they complain and question the experience and reliability of the surveyor(s)”;

“BCT survey guidelines are too minimalistic and do not offer sound baseline data for any EPS or ecological impact assessment survey. For example: Non ecologists will take the recommended survey frequency as a "statement of requirement" and that is all the work that is required regardless of the site. SNH do not even refer to it when they give out advice for requesting a bat survey”

“BCT good practice document is confusing.”

Comments received in response to my survey question (BCq12) which asks what would improve the available guidance:

“BCT Guidelines to be consistent throughout - there are some key contradictions within”

“Something which addresses the growing tendency for the BCT bat survey guidelines to be treated as rules - something which stresses that experience and knowledge are far more valuable than blind adherence to what are inevitably very generalised guidelines!”

This BCT/ALGE checklist format has begun to be adopted by LPAs as part of the Local validation requirements in the Guidance notes for the 1App Standard Application form (e.g. Woking Borough Council<sup>5</sup>, Brecon Beacons National Park Authority<sup>6</sup>, Cheshire East Council<sup>7</sup>).

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<sup>5</sup> Notes accompanying local validation checklist (mandatory), Note 5: Bat survey

A bat survey should be carried out before any of the following works are undertaken; demolition of buildings or the modification to roof voids of pre-1960 buildings within 200m of woodland or water; pre-1914 buildings within 400m of woodland or water; pre-1914 buildings with gable ends and slate roofs; a pre-1914 barn with exposed wooden beams; a tunnel, mine, ice house, military fortification, air raid shelter or similar subterranean structure; a tree older than 100 years, or with obvious cavities or a girth greater than 1m at chest height.

[http://www.woking.gov.uk/planning/service/applications/listsforms/localchecklist\\_mandatory/validationmandatorynotes#page\\_title](http://www.woking.gov.uk/planning/service/applications/listsforms/localchecklist_mandatory/validationmandatorynotes#page_title), Accessed 28 March 2010.

<sup>6</sup> Staffordshire County Council 2008 Staffordshire Moorlands Requirements For Biodiversity and Geological Conservation. [http://www.staffsmoorlands.gov.uk/downloads/12\\_4\\_08\\_SMoorlands\\_requirements\\_for\\_biodiversity\\_and\\_geologica\\_cons\\_.pdf](http://www.staffsmoorlands.gov.uk/downloads/12_4_08_SMoorlands_requirements_for_biodiversity_and_geologica_cons_.pdf), Accessed 28 March 2010.

<sup>7</sup> Cheshire East Council (2009) Guidance on Local Requirements for the Validation of Planning Applications: Biodiversity and Geodiversity Conservation Statements, April 2009. [http://www.cheshireeast.gov.uk/environment/planning/development\\_management/validation\\_checklists.aspx](http://www.cheshireeast.gov.uk/environment/planning/development_management/validation_checklists.aspx)

### 3.3 Summary

The three protocols tested all showed low to moderate specificity and sensitivity, and thus are tools best used by those with expert knowledge who can apply appropriate judgement. Those lacking relevant natural heritage skills would struggle to effectively select high risk sites and developments using these protocols. The importance to LPAs of widespread access and utilisation of expert natural heritage skills was strongly indicated.

Screening based upon keywords in the application title can be helpful to some degree, but the title often does not identify all relevant works, and thus the detail of each application must be considered. Use of keywords could probably be effective in screening out the highest and lowest risk applications (Table 3.2).

Investigation of the screening practice by Fife Council over two sample weeks with 119 applications revealed only one bat survey, but an estimated 26 (22%) with high risk of potential for harm to bats.

Review of the database of known roosts in Fife highlighted that 32% had been subject to one or more planning application between 1998 and 2007, representing about 1% of all planning applications in the period.

There is currently no guidance on what is a reasonable success rate in development screening for bats or biodiversity, and the matter rests with individual judgement. I suggest that a reasonable working definition of success might be to identify all maternity roosts and perhaps 80% of roosts overall, but the trigger rate should ideally result in a manageable number of sites showing reasonable cause for bat survey.

## 4 Screening practice amongst Local Planning Authority staff

This chapter presents the results of a descriptive survey using a questionnaire to describe the experience and practice of LPA staff who are involved in the screening of development applications. Questionnaire surveys have been widely used for social and psychological research, and have also been used to investigate both land-use planning and conservation (Babbie 1994, 2008; Fenn 2002; Weller and Zielinski 2006; Miller *et al* 2009) and studies of bats and development (BCT/BMT Cordah 2005; Scott 2007). Weller and Zielinski (2006) specifically promote the potential for studies using internet-based questionnaires.

### 4.1 Method

To gather observations of current practice from as near representative a sample as possible, a cross-sectional, descriptive questionnaire survey was chosen (Babbie 2008). The sample population was generated by non-probability sampling, by contacting those who were thought likely to have relevant experience (RTPI members, ALGE members, Biodiversity Officers, and LPA Development Control staff). This approach allows access to a broad sample from a population that could not be individually identified or directly addressed. However, the sampling scheme relies on voluntary responses to an imperfectly distributed questionnaire, and is thus inherently biased and violates basic assumptions for many statistical tests. I therefore present mainly descriptive observations and trends rather than statistical results.

The questionnaire was aimed at gathering information on the experience and practice of LPA staff, who are involved in screening development applications for bat issues, especially in District Councils where the majority of planning applications are determined.

In a pilot stage, a draft version of the questionnaire was sent to a small number of planners, biodiversity officers and ecologists, as well as a social policy researcher for comment. The final version of the questionnaire is in Appendix 5. The survey was open for response from April to October 2009. The survey was hosted on [www.surveymonkey.com](http://www.surveymonkey.com), and invitations were sent out via several means. The RTPI newsletter carried an invitation, and the invitation was also emailed directly to RTPI members via the 'Development Management Network', a members' interest email network, as well as via specialised bulletins to planners interested in Development Management, Rural and Heritage issues. Biodiversity officers received invitation via an article and weblink in Biodiversity News in May 2009. The Scottish Biodiversity Forum, and the Welsh Assembly Nature Conservation and Biodiversity Branch emailed all biodiversity officers in these countries directly with an invitation. An invitation was sent to the approximately 300 members of ALGE through Michael Oxford (3<sup>rd</sup> May 2009) with invitation to the survey via a weblink. A reminder was sent out in September/October 2009, and at the same time a further email invitation was sent to a random selection of LPA development control teams. A total of 83 individuals started the survey and of these 46 (55%) completed the survey fully.

Questions investigated the organisational allocation of responsibility for screening applications for bat issues, the availability and use of expert skills and data, and the process

and application of screening to different application types, sites, and proposed works (Appendix 5).

To reduce the bias inherent in self-selected survey responses (i.e. respond if you are interested) I included questions to indicate the respondents' role, showing that many planners as well as ecology staff responded.

## 4.2 Results

The full results are presented in the Supplementary Information CD-ROM, with summaries of responses presented below with a brief interpretation.

### Role of screening staff and organisational structure

The majority of respondents were planning officers (53%) with biodiversity and ecology officers making up a further 32%, the remainder of responses came from employees in a mix of policy, planning, ecology and biodiversity roles. Thus it is not only DC planning officers who are involved in screening PAs for bats but also LPA ecologists, biodiversity officers, planning technicians etc.

Questions sought to identify the proximity of development control decision makers and their ecological advisors. Most respondents were in the same organisational section as Development Control, 64%, though others were within Countryside or Environment Services. Responses generally suggested close contact and liaison even where not within the same organisational section. One respondent is an outsourced independent ecologist providing a specialist advisory service on a contract.

In 45% of cases a council officer (mostly planning case officer or council ecologist) is tasked with screening received applications for bat issues, though the single largest response, 22.4%, was for "no specified person". Only 2.6% expected the applicant to make the check for existing bat records. In a few cases there is no formal check at all, while a few LPAs include this check in the application registration-validation process, and in one case the check is performed via GIS as part of the application registration process.

### Percentage of planning applications screened for possible bat issues?

How does treatment of different types of development planning applications (PAs) vary between and within LPAs? Surprisingly, in 3% of responses no Full PAs are screened for bats, something which should be a legal impossibility, and must be attributed to 'laggards'<sup>1</sup>. Only 45.5% of LPAs screen every received Full PA for bat issues (and 62% screen more than half), and the percentage drops for all other categories of application type: Outline (40.3%), Listed Building and Conservation Area (34.4%), Demolition<sup>2</sup> 31.7%, Reserved Matters 30.2%, Agricultural Prior Notice 12.7% and Advertising 9.8%. Many LPAs do not screen any Agricultural Prior Notice (34.9%) or Advertising proposals (47.5%) for bat issues.

<sup>1</sup> Rogers observing that people show different attitudes to adoption of new ideas and products: he categorised adopters as innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%) and laggards (16%). This last group tend to be very conservative, fixated on the past, preferring to do what they've always done. The categories are based on standard deviations from the mean of the normal curve. Rogers (2003, 5th ed.)

<sup>2</sup> Applications for demolition warrant under The Building Act 1984 and Building Regulations 2000 are received and dealt with often by the same service and have similar impacts so are included here

This data shows that, despite 15 years having elapsed since the legislation was introduced in 1994, there is still a very low percentage of applications for which bats are considered at all, and for some categories of 'development' alarmingly low screening rates exist, e.g. demolition warrants.

For one LPA an ecologist visits each "redundant building both pre- and post application"; in another LPA, a planner stated "No specific bat screening takes place."

### **Specialist advice relating to natural heritage**

Three LPAs commented that they produce a checklist that addresses natural heritage issues, though it is not clear whether or not these specifically address bats. Many, 38.6%, do not produce natural heritage guidance for applicants, though 30% produce guidance about biodiversity, 23% produce guidance specific for bats, 12.3% for EPS and two have guidance relating only to trees and biodiversity. Three LPAs were in the process of developing guidance.

Although many LPAs do produce guidance about natural heritage, 40.4% do not make their guidance publicly available. Of those which do publish, the most favoured medium is the internet (42.1%) with 26.3% producing a published booklet and fewer than 10% including their guidance in the standard application pack. One commented, "There is plenty of advice out there - my authority don't produce their own".

Amongst LPAs, 23% provide 'nothing' about bats to prospective planning applicants. For some LPAs the standard application guidance includes reference to bats or biodiversity (14%), while others provide verbal pre-application discussion (18%) or a recommendation to discuss the proposals with the LPA ecology staff or Natural England (7%). Guidance included in pre-application information covered: legal status of bats; survey standards; survey timing; surveyor qualification; reporting standards; mitigation; licensing; when/where survey is needed; finding a bat surveyor. Some LPAs send out a checklist or additional declaration form to be submitted with the application (5%), and one directs attention to relevant Local Plan policies, while some now include information about bats in the 1App Local Requirements guidance (14%) and this is likely to become more widespread. Two LPAs indicated they were currently developing pre-application guidance. Pre-application discussion is the chosen stage for many LPAs to introduce consideration of bats, but they highlight that this mainly applies to larger-scale applications only.

One planner was concerned that LPAs should provide ecological comment to developers through qualified planners: "All advice must be filtered through the relevant planning case officer rather than through side shows between [potential] applicants and the ecologist. Would NOT be good practice for local authority ecologists to be providing unilateral advice straight to the applicants because the ecologists are not trained planners and are therefore not competent to provide definitive advice. They should only be advising the planning case officer, who must then weigh up that advice with all other considerations and obligations."

Several comments highlighted the responsibility of the developer to consider such requirements:

"At present the onus is on the applicant to seek out advice" [Biodiversity Officer];

"Depends if they come to us prior to submitting an application - most don't" [Planning Officer];

“Usually none unless a formal pre-application enquiry is made” [Planning Officer];

“Checklist, see <http://www.hampshirebiodiversity.org.uk/1app.htm>, should be used by all applications, but doesn't tend to be” [Ecologist].

### **LPA internal guidance note for planning officers**

Questions addressed how systematic and transparent the LPA's screening process is, written protocol guidance being likely to engender a more consistent approach between staff. Responses show there is strong polarisation amongst LPA staff as to the merits of making such protocols public, and perhaps the benefits of such transparency are less clear-cut.

Internal guidance is available to planning officers in 50.9% of cases, and four specifically mentioned training provided to planners about bats.

A remarkable 19.3% do make their screening protocol publicly available with 12.3% including it in the standard application pack. However, the vast majority of respondent LPAs, 77.7%, do not make their internal guidance or screening protocol public. The reason for this reticence may lie in the answer one respondent gave: “because an unscrupulous applicant could use it as a guide to how to remove all traces of bats from a building or render a building unsuitable for bats” [Senior Ecologist and Policy Advisor].

### **Procedures for screening planning applications for bats**

The validation process is intended to check that all relevant information is submitted with the application, although I know from experience that applications in at least some LPAs are registered as received, but not formally and fully validated upon receipt. There may follow a constraints check, site visit, consultation with an ecologist or other staff before the application is deemed valid.

In 25% of LPAs “nothing” happens in relation to bats when applications are received, but this failure to address potential bat issues drops to 8% through validation. Thus most LPAs have some process to consider the potential presence of bats for all applications received.

About 30% pass each application through a screening process sometimes using local validation criteria, or the draft ALGE criteria to check for the potential for bats to be present, and this is most commonly undertaken by the planning case officer or planning support staff (26%) rather than an ecologist. Planning officers may then consult specialist staff for advice (16%). In some LPAs the ecologist (18%), local BRC (9%) or local Bat Group (2%) screen the weekly lists of applications received. In 2 cases the LPA will not validate an application if it does not either have a bat survey or a Biodiversity checklist declaration form.

One LPA only requests bat surveys for demolition, and another only for “barns / old buildings”.

Some LPAs state that bats are considered after validation (6%).

Where potential for bats was previously identified (e.g. at pre-application discussion) 6% of LPAs stated that an adequate bat survey must be received for the application to be validated, otherwise it is rejected. Once an application is received, and if bats are considered material, a further 18% indicate a bat report is required before the application can be accepted as valid;

a further 6% validate the application but requiring the bat report prior to consent. Where reports are received, some planning officers judge whether further details or action are required, but many consult with specialists (in-house ecologist or biodiversity officer 26%, SNCO 12%, local Bat Group 4%). An Advisory Note underlining the legal protection on bats and their roosts may be added to consents awarded (6%), especially where the LPA considers requesting a full bat survey is not reasonable.

For one LPA the biodiversity officer checks the applications after validation, which can then result in a recommendation to withdraw and re-submit later.

Two LPAs include bats in the routine computerised GIS constraint checks, however one LPA only considers this information *after* validation. Applications lying within the 'bat alert layer' are flagged for action, or passed to the ecologist for comment.

Concern was expressed by a few respondents about the lack of ecological skills and understanding of those non-ecologist staff vetting applications, or of planning officers who assess the completeness and standard of bat survey reports, e.g.:

“admin staff that carry out the validation process are poorly trained and could not carry out this task adequately” [Planning Officer];

“It's very common for application to be validated only for the planning officer to feel a survey is required” [Planning Officer].

Concerns also included inadequacies and mis-application of the LPAs adopted process, e.g.:

“In most cases we leave it until a site visit by the case-officer has taken place and subsequently determine if a bat survey would be required. Often 21 days is not enough time to get a bat survey done and submitted with any mitigation measures, so we'd recommend the application is withdrawn and submitted at a later date once the information has been gathered” [Planning Officer];

“The planning application will be validated without any reference to nature conservation issues” [Ecologist];

“Theoretically, if bat info is not provided, the application cannot be registered / validated. However, I fear that many slip through the net at this stage. Hopefully 1App will stop this happening” [Biodiversity Officer].

Some comments indicated effective and integrated processes, e.g.:

“If further info is needed, the 8 week 'countdown' can be paused until the info is received” [Biodiversity Officer];

“The council has adopted the ALGE template for the validation of planning applications as a Local Requirement on most types of applications. If a bat survey is not attached to an application and the guidance notes from the ALGE template indicate that one is required, the application won't be validated until a bat survey is received” [Biodiversity Officer];

“Bio officer checks weekly list of application and picks cases of interest and then id's potential interest, usually two to three weeks after validation. This

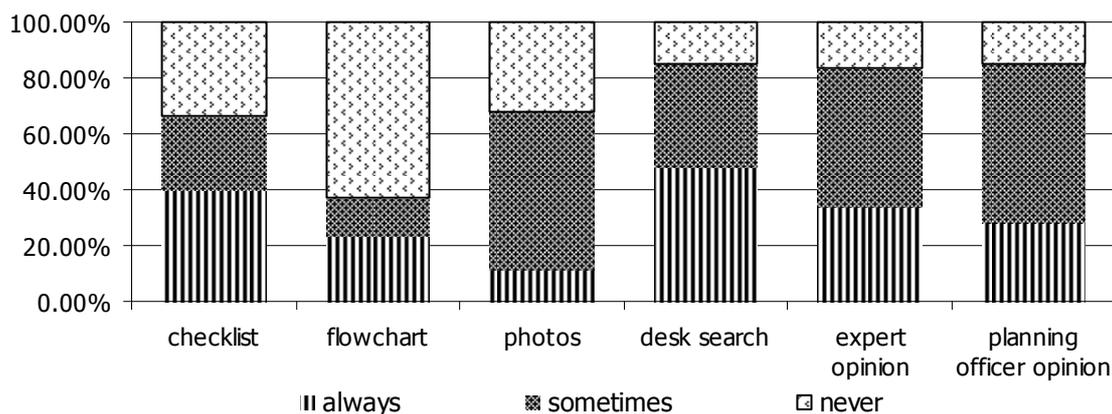
triggers standard letter to be sent to applicant requesting survey together with list of local consultants” [Planning Officer];

“The application is checked to see if any reference to bats has been made. If not then the planner liaises with the ecologist to ascertain whether a bat survey is required” [Planning Officer];

“Applications that have the potential to impact on bats are flagged up with reminders that an informative note should be attached to any grant of consent” [Planning Officer].

There is a striking lack of consistency in the methods in use, though almost half of LPAs always undertake a desk study of existing records (and may include habitat suitability in this desk study), and 40% use some kind of checklist to identify high-risk development sites. A significant proportion routinely take expert ecological opinion into account, with a high proportion of LPAs apparently having access to such aid (Figure 4.1). Few authorities make use of site photographs, perhaps because there is no requirement for submission of such photographs in most cases, and thus availability is restricted.

Figure 4.1 LPA screening process methods



#### Development proposal activities indicating need for a bat survey?

Responses were summarised as the modal value for each activity (Figure 4.2), thus planning staff rated the activities from low to high significance of risk to bats as follows:

Not at all: repainting, window replacement.

Not likely: pond drainage, mineral extraction, new street/exterior lighting, erection of new building, internal alterations, conservatory extension.

Possibly: site clearance, tree surgery, tree felling, hedge removal, large wind turbines, mini or micro wind turbine, conversion of garage, renovation/repairs of concrete bridge, conversion of stables/steadings, roof conversion, side extension, dormer conversion, extension tied into roof, re-roofing, roof repairs.

Possibly-probably: demolition.

Probably: renovation/repairs of stone bridge, renovation/repairs of historic building/structure, renovation/repairs of farm steadings.

Definitely: nil.

In contrast to the finding that 67% of protocols highlight demolition as a risk to bats (Section 2.2.2.), there appears to be a failure to truly reflect this risk assessment in practice. Tree-felling, tree-surgery, loft and dormer conversions are considered high risk activities in many protocols (75%) but are taken by many LPA to only “possibly” indicate need for a bat survey. Lighting is evidently little considered as a risk in either protocols or practice.

Comments from respondents showed that some LPAs utilise expert staff to assess risk raised by these factors, operating on a case-by-case approach:

“Less likely to ask for a survey for householder applications” [Planning Officer];

“much would depend on the site context, proximity to foraging habitat etc” [Planning Officer];

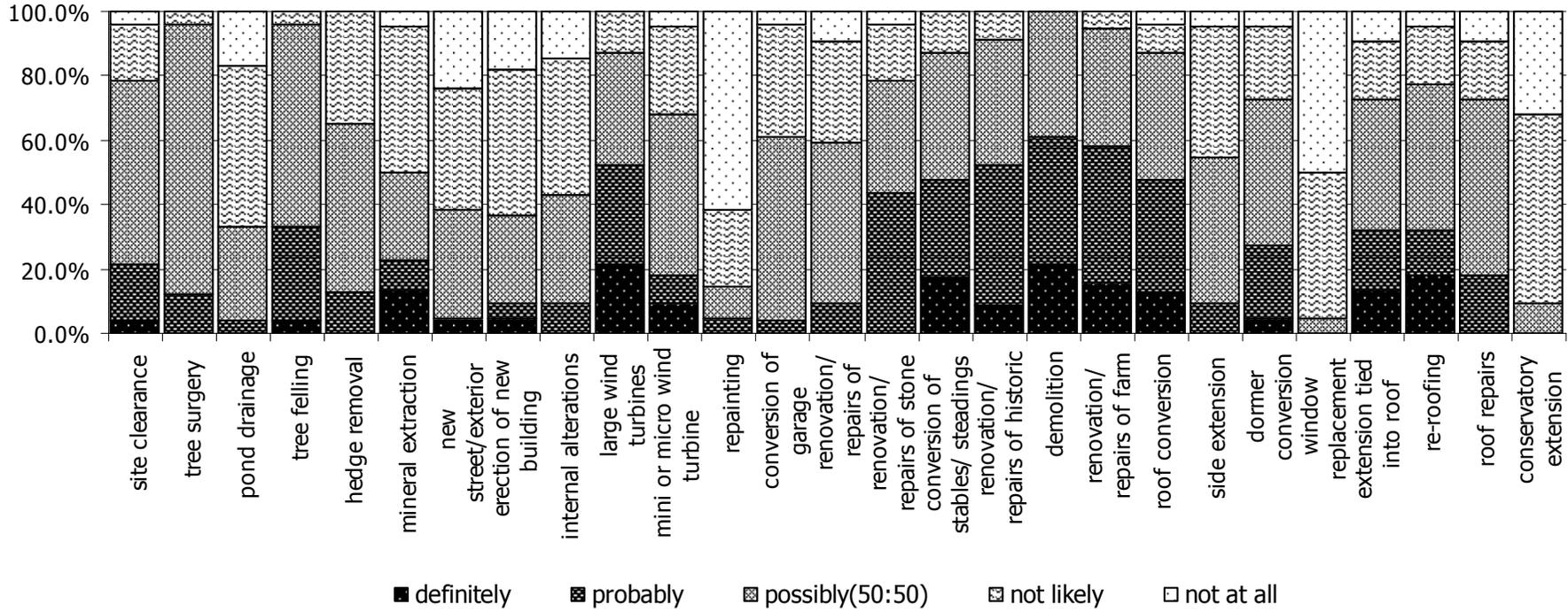
“Quite often, proposals that may have an indirect impact to bats will be overlooked by the planners (e.g. new lighting). In the vast majority of cases, surveys will only be requested when an activity is likely to result in a breach of the legislation protecting bats; for indirect impacts such as lighting, recommendations are often provided by the ecologist to mitigate a possible impact to bats (in the absence of survey info)” [Ecologist];

“Extensions and Householder Applications will have advisory placed on application and applicant will be advised if bats are present/suspected a survey should be conducted prior to consent” [Ecologist];

“Many of these things, such as repainting, window replacement, re-roofing etc would not require planning permission and so we would not have any control.” (other than for a listed building or a building in a conservation area)” [Planning Officer].

Comments also highlighted awareness of the importance of taking a range of factors into consideration, including site features, proposed development activities and surrounding habitat.

Figure 4.2 Development proposal activities indicating need for a bat survey



### Development proposal site features indicating need for a bat survey?

Most respondent comments made the same key point as for the previous question, i.e. that the need for survey would be dictated by the combination of type of development proposed with suitability of the affected habitat/feature for use by bats. Filtering the responses, looking at those by planners shows a more cautious approach, with more responses of “not at all”, “unlikely” and “possibly” (see Supplementary Information CD-ROM).

For example, the re-roofing or demolition of a pre-1900 house located close to water/woods would DEFINITELY trigger the need for a survey. The same house would NOT be surveyed if minor alterations were proposed to features not considered suitable for bats.

### Declaration and disclosure

Table 4.1 Declaration of consideration of possible presence of / impact on bats

no	7.0%	3
yes, applicant signs a declaration	39.5%	17
yes, planner uses validation checklist	32.6%	14
yes, but planner does not use written criteria	20.9%	9

Across all LPAs represented, over a third require a signed declaration from the applicant to indicate that they have made due consideration of potential impacts on bats (see Table 4.1). The introduction of the 1App form has meant that for all LPAs in England and Wales a question relating to Biodiversity and geodiversity is included as part of the application papers submitted. Although this raises an opportunity to ensure biodiversity is considered for all applications, it does not yet seem to be well adopted: “1App is signed but usually wrong”, “1App asks whether 'biodiversity' is an issue - often not completed or completed incorrectly”.

Some authorities also use a checklist when validating received applications (see Appendix A5:Q13), or may put considerations of bats in the planning officer’s committee report (see comments under Q. 16 Other, Supplementary Information CD-ROM), yet almost one in five LPAs have no written criteria for the planning staff to use.

### Advice and Support to Applicants

Table 4.2 Information provided to the applicant

Offered responses (sorted):	%	count
information that licensing may be required	64.60%	31
advice on survey timing	54.20%	26
advice on survey methods	47.90%	23
advice on survey effort required	45.80%	22
a list of known bat consultants	45.80%	22
an 'Informative' regarding bats	41.70%	20
advice on content of the survey report	41.70%	20
none of these	4.20%	2

Other advice given included: to contact Natural England for information; a link to the IEEM Guide to Ecological Impact Assessment website; and to the IEEM directory to find ecologists; and the BCT website.

The great majority of LPAs require the bat survey report prior to determination (83.3%), rather than making the bat survey or subsequent report subject of a condition in the consent (4.2%). One LPA requires the bat survey prior to validation of the application, but for

another LPA the practice varies between planning officers depending on their personal awareness of bat legislation. One respondent comment claimed that it “Depends on how integral to application”.

#### **Awareness of Case Law: “The Cornwall Case”<sup>3</sup>**

This High Court case provided judicial review of, and quashed, a decision by Cornwall County Council to grant planning consent despite the submitted Environmental Statement having raised three ecological issues, including bats, requiring further survey (Anon 2001a; West 2001; English Nature Northumbria Team 2004). The case confirmed that, for developments requiring EIA, full environmental information affecting European protected species must be submitted and considered prior to permission being granted. It is not acceptable to leave required surveys, impact assessments and mitigation measures to be dealt with by way of a planning condition to be implemented after granting of planning permission. It was argued by English Nature (Mitchell-Jones 2004) that these principles apply equally to non-EIA developments as well.

The questionnaire responses show an almost even split between those LPA staff who are aware of this aspect of planning case law (56.3%) and those who do not know of it (43.8%).

#### **Consideration of bats as material**

As shown in Table 4.3, the majority of LPAs respond to receipt of a bat survey by seeking an expert opinion from in-house environment staff, though individual levels of knowledge of bat ecology may vary amongst such staff, and perhaps this is backed up by the high rate of consultation with SNCOs. One respondent commented, as has been noted in comments to other questions, “NE will no longer comment on protected species”.

Few LPAs will routinely include reference to bat surveys in the planning officers’ report to committee, perhaps indicating the need to keep reports brief and not to include reference to non-material facts in cases where surveys determined that bats were not an issue, but this could also indicate a lack of due value being placed on the assessment of biodiversity issues. That nearly 40% of LPAs claim to file the bat report on the internet e-planning webpages shows a commendable degree of transparency, though a Google search for “bat survey report” on “gov.uk” webpages in 2009 yielded only 262 results, on a limited number of LPA websites, and most were reports to committee rather than bat survey reports.

**Table 4.3 Process once a bat survey has been received**

Offered responses (sorted):	%	count
copied to the Planning Authority ecologist <sup>1</sup> for comment	77.1%	37
any mitigation requirements are conditioned	75.0%	36
reviewed by the planning case officer	54.2%	26
copied to the SNCO (i.e. SNH, NE, CCW, NIEA) for comment	54.2%	26
filed on the e-planning case webpage	37.5%	18
always included in any Committee Report (see below)	8.3%	4
copied to a consultant for comment	4.2%	2
none of these	0.0%	0
<i>Other responses:</i>		
SNCO is consulted for major, controversial or difficult cases	2.1%	1
It is referred to in the committee report (a summary of the findings and implications)	4.2%	2

Note 1. or environmental strategy officer, biodiversity advisor, trees and environment team (not formally trained ecologists)

<sup>3</sup> R v Cornwall County Council ex parte Hardy and Gwennap Parish Council CO/4784/99. September 2000.

Bats are seen as material consideration for Full planning applications by the great majority of respondents, though remarkably two respondents were not sure: one was a planner, the other an 'environment strategy officer'. Bats are generally considered as material (Table 4.4), though for most types of application there is significant uncertainty (10% - 37.8%), and bats are considered not material by significant numbers for two classes of applications (listed buildings 13%, and agricultural prior notice 22.2%). The two 'unsure' respondents were in Scottish LPAs, for whom there is no explicit guidance regarding bats as material for most kinds of application, including outline. Very few respondents believe bats are 'not' material, rather they are 'unsure', which begs the question "what action do they take regarding bats when they are unsure?"; do they then seek expert input, or do they skip the question?

**Table 4.4 Are bats a "material consideration"**

Offered Responses (sorted by 'Yes')	yes	no	not sure	count
full planning application	95.7% (44) <sup>1</sup>	0.0% (0)	4.3% (2)	46
outline planning application	89.1% (41)	0.0% (0)	10.9% (5)	46
change of use	81.8% (36)	2.3% (1)	15.9% (7)	44
reserved matters	75.0% (33)	4.5% (2)	20.5% (9)	44
demolition warrant	68.2% (30) <sup>2</sup>	4.5% (2)	27.3% (12)	44
listed building consent	65.2% (30) <sup>3</sup>	13.0% (6)	21.7% (10)	46
conservation area consent	53.3% (24)	8.9% (4)	37.8% (17)	45
agricultural prior notice	40.0% (18)	22.2% (10)	37.8% (17)	45

Notes.

1. Scott (2007) found 100% of LPA planners and ecologists studied in England considered bats material for full planning applications

2. In England, LPA staff responded to a similar question with 35% 'yes', 25% 'no', and 40% 'not sure' (Scott 2007).

3. In England, LPA staff responded to a similar question, relating to LBC applications where not associated with a full application, with 55% 'yes', 8% 'no', and 35% 'not sure' (Scott 2007).

### Proposals for enhancing the screening process

Responses were very varied, but certain themes were evident, and I present a summary below (Table 4.5). One respondent thought more involved screening processes "would result in an unworkable number of applications needing a survey" i.e. there would not be enough bat surveyors to fulfil this demand.

**Table 4.5 LPA staff 'wish list' of information, guidance, or training, etc**

<b>information and guidance</b>	1.	Raise awareness of seriousness of penalties: "DC officers (and their management) not understanding legal obligations and penalties open themselves and council and developer to serious legal challenge"
	2.	Clarify if bats are material, especially re listed buildings, conservation areas, demolition
	3.	Clarify whether bats only material if serious disturbance to a roost is likely.
	4.	Advice regarding fear of unlawful action that leads LPAs to seek to over-survey Workable tools were requested: "workable screening method", "simple checklist for DC officers";
	5.	Guidance on the application of the three tests in the Habitats Regulations (following the East Cheshire / Woolley judicial review)
	6.	How to address consideration of bats and biodiversity for developments not usually requiring Planning Consent, e.g. Demolition
	7.	"LBC cannot use Conditions" – so how should one assert e.g. mitigation requirements such as a Method Statement?
	8.	Guidance about what it is "reasonable" for householders to provide in respect of bat / biodiversity surveys in support of an application
<b>training</b>	1.	Training targeting bats and planning
	2.	Training for LPA staff from SNCOs
	3.	"We could benefit from comprehensive training on how to use the guidance and technology to the best effect"
	4.	Increased ecology content of Planning degrees
<b>other</b>	1.	More support staff: "employ more ecologists in planning"

2. Concern of possible over-loading of system (planners, surveyors, householders etc)
  3. Address the shortfall of quality bat surveyors
  4. Address the shortfall of quality planning ecologists
  5. "Lack of staff resourcing and responsibility"
  6. "Lack of support (Councillors, managers, etc)"
  7. Planners and developers don't take EPS seriously if courts and SNCOs don't
  8. Weakness of screening protocols that devalue modern buildings and thus pipistrelle roosts
  9. Developments may fail if poor advice and guidance or poor survey leads to delays – LPA staff concerned over potential liability
- 

### 4.3 Summary

It is over 15 years since the Habitats Regulations legislation was introduced in 1994 requiring the full consideration of impacts upon EPS prior to planning consent, yet there is still a very low percentage of applications for which bats are considered at all, and for some categories of development, such as demolition warrants, alarmingly low screening rates exist.

At present the onus is on the applicant to seek out advice on biodiversity issues but it is debatable to what extent they are held to this obligation by LPAs or SNCOs. Guidance is available from many sources and, though becoming more comprehensive, there are still notable gaps.

In contrast to the finding that most protocols highlight demolition as a risk to bats, there appears to be a failure to truly reflect this risk assessment in practice. Tree-felling, tree-surgery, loft and dormer conversions are considered high risk activities in many protocols but are taken by many LPA to only "possibly" indicate need for a bat survey. Lighting is evidently little considered as a risk in either protocols or practice.

The 1 App form has raised an opportunity for all LPAs in England and Wales to ensure biodiversity is considered for all applications, which does not yet seem to be well adopted; almost one in five LPAs have no written criteria for the planning staff to use at validation. In Scotland and Northern Ireland the reform of the planning application process has not even achieved this level of attention to biodiversity.

LPAs have relied to a high level on SNCO staff providing expert opinion on bat survey reports, but SNCOs are withdrawing from this role and pursuing capacity building of such skills within LPAs.

## 5 Experience amongst bat survey consultants

A second questionnaire survey investigated the experience and practice of consultant bat surveyors, who advise developers on when and how to survey, and who observe the result of LPA screening decisions through their survey experience. These observations offer some insight which may help refine screening protocols. The level of success of such surveys also sheds some light on the sensitivity and specificity of screening methods. This was a descriptive questionnaire survey with the same implications and limitations as described in Chapter 4.

### 5.1 Method

A pilot version of the questionnaire was sent to a small number of ecologists and consultants, as well as a social policy researcher for comment. The final version of the questionnaire is included in Appendix 5. The survey was hosted on [www.surveymonkey.com](http://www.surveymonkey.com), and opened for response in April 2009 and a reminder was sent in September 2009. Invitations were sent out via several means. An email explaining the project and inviting responses was sent to a list of 303 email addresses for those IEEM members listed on the IEEM open-access directory as undertaking bat surveys. A short note and invitation was also printed in the IEEM e-Newsletter. A similar email invitation was sent to ten additional bat surveyors identified through professional contact. ALGE sent its 300-odd members a similar invitation through their forum. A reminder email was also sent. From over 600 invitations, approximately 13% (81) attempted the survey, and of these 65.4% (53) completed the survey fully.

The full results are presented in the Supplementary Information CD-ROM, with a summary of the main points below. For each question the responses are summarised with a brief interpretation.

### 5.2 Results

Respondents were asked about the number and outcomes of surveys they had undertaken in the three previous years (2006-2008, Table 5.1). This aimed to look at the numbers of surveys typically undertaken, and to investigate potential trends and indications of development survey efficacy, that might shed light on whether screening is effective.

Table 5.1 Outcomes of bat surveys undertaken on development sites

	<b>2008</b>	<b>2007</b>	<b>2006</b>
a) surveys undertaken by <b>all</b> respondents <sup>1</sup>	1206	880	817
b) surveys included in analysis <sup>1</sup>	815	701	655
c) surveys revealed roosting bat(s)	334 (41.0%)	287 (40.9%)	297 (45.3%)
d) only foraging or commuting bats found	418 (51.3%)	397 (56.6%)	349 (53.3%)
e) surveys finding <b>no</b> bat roost	485 (40.5%)	426 (39.2%)	372 (43.2%)
f) surveys found no evidence of bats at all	200 (24.5%)	158 (22.5%)	179 (27.3%)
g) no visible signs of bats, but further bat survey found roost(s)	114 (14.0%)	83 (11.8%)	85 (13.0%)
h) neither bats nor signs of bats found during surveys, but bats found later during subsequent development works	4 (0.5%)	4 (0.6%)	20 (3.1%)
i) clear signs of use by bats, but no active bat use was found during surveys <sup>2</sup>	92 (11.3%)	77 (11.0%)	71 (10.8%)
j) consultants receiving request for bat surveys after bats have been found on site	40 (49.1%)	34 (41.8%)	25 (30.9%)

1. Only 52 respondents who gave full answer to this question were included in the full analysis.

2. This could relate to sites which are no longer in use, or which are used seasonally or only occasionally, for instance mating roosts.

Only 22-27% of surveys did not find bats, and this overall success rate appears good; however only 40-45% find a bat roost, despite the de facto aim of development surveys to identify bat roosts. A significant minority of sites have no visible signs of bats, but further surveys do discover a bat roost (Table 5.1 g), underlining the importance of the use of emergence and dawn surveys in addition to visual inspection. A similar proportion of sites appear to have roosts not used for weeks, months or years, despite clear signs of use by bats; there is no guidance on what constitutes a disused roost, raising absurd dilemmas for all involved.

Bat surveys are sometimes requested late in the development management process, when bats are found on a site after development works have begun (Table 5.1 j). Responses show most consultants, in most years, are not requested to undertake such post-consent bat surveys, and others typically receive only one or two such requests per year. However, there is an apparent trend, with more bat surveys being requested after bats have been found on site (Table 5.1 j). Does this perhaps indicate a greater awareness or responsibility amongst staff working on development sites; are they now more proactive in reporting bats when found? Or rather does it show the screening practice is failing to identify the affected planning applications?

Respondents identified key features, associated with bat roosts, which made sites suitable for roosting bats (Table 5.2); these could improve screening triggers. Aspects of habitat had a high rating: 72% respondents referred to habitat features, so experience shows that a location in good habitat is a key indicator; it was noted that an isolated, building with few visible accesses or cavities but in excellent habitat is more likely to hold a roost than an 'ideal' building in poorer habitat. An isolated building in poorer habitat may also be at higher risk simply because of limited roost site availability (personal observations). The proximity of potentially suitable roost spaces within an area of good foraging habitat was specified by (35%). Habitat connectivity (11%) and presence of a river or water body (18%) were highlighted by some. Old trees were also mentioned and one noted that "Cliff faces and rock scree should not be overlooked".

**Table 5.2 Respondents associating each constructional factor with roosting bats**

<b>main factors</b>		<b>lesser factors</b>	
abundance and variety of potential roost crevices / spaces	19 (32%)	included stone-built walls	6 (11%)
poorly maintained structures with many gaps	17 (30%)	presence of fascia or soffits	5 (9%)
gaps and cavities	13 (23%)	cavity walls	3 (5%)
lack of disturbance	11 (19%)	taller buildings	2 (3.5%)
older built structures	9 (16%)	old timbers	2 (3.5%)
or slates and tiles	10 (17%)	pitched roof	2 (3.5%)
large or complex roof	10 (17%)	draught-proof	2 (3.5%)
and warmth / a source of warmth, such as boiler, or south-aspect	12 (21%)	occupied by people	2 (3.5%)
		dark / low-light levels	2 (3.5%)
		features mentioned only once were dryness, lead flashing, insulation and also corrugated asbestos sheeting.	1 (1.7%)

n = 57

Notable comments included:

“Key factor is the open approach required by the surveyor - the unexpected is the norm.”

“Location - age of building and design obviously have an effect, but the location seems to be the prime consideration. Numerous examples of bats appearing in new houses, asbestos roofs etc, because only need a small part to be accessible/suitable.”

“The most significant roosts have been in rural low populated areas in stone built structures over 300 years old that have roofs in a decent state of repair. Within the near vicinity have been mature broadleaved trees/ woodland areas, rivers and open pasture.”

Do surveys commissioned for development proposals actually discover many bat roosts of high significance? Are these surveys a cost effective way to direct significant bat population conservation measures? Although many surveyors reported roosts of low or medium significance, few roosts found were of individual high conservation significance.

Table 5.3 Respondents' observations of significant roosts (data from question 3)

<u>Annex 2 species</u>	<u>count / comment</u>
lesser horseshoe bat roost	25+
lesser horseshoe bat roost	400+
lesser horseshoe bats maternity sites	100+
lesser horseshoe bat hibernaculum	14 bats
lesser and greater horseshoe bat roosts	numerous (mostly low numbers though)
barbastelle roost	1 (first building roost in Wales)
barbastelle adult female roost	120
Bechstein's adult female roost	120
<u>Larger numbers of commoner species</u>	
Natterer's bat - maternity roost	200+
Daubenton's bat roost	100+ in Scotland
common pipistrelle maternity roosts	130, 300, and 150 (near Thurso in north of range)
common pipistrelle roost	~150, roosting in a building that another consultant had categorised as unsuitable
soprano pipistrelle roost	600+
brown long-eared bat maternity roost	90
<u>Unusual records, e.g. edge of range / range extension:</u>	
roosts at very northern edge of range, Caithness, Outer Hebrides, Sutherland	
first barbastelle building roost in Wales	
lesser horseshoe bat roosts in Warwickshire	
Leisler's bat new record for district	
Nathusius' pipistrelle, new record for county	
roost of 20+ soprano pipistrelles in Warwickshire	
regionally significant barbastelle roost in Northants	
A <i>Myotis</i> swarming site found in a mine whilst surveying for a windfarm	
A boarded up window: winter hibernaculum; spring transitional; summer; and autumn transitional for small numbers of pipistrelles	
site with probably all 5 northern Scottish species roosting	
sites with 3+ species	
one site found did have four bat species present but in small numbers	
Regionally significant mixed species assemblage at one site	
28 separate roosts (15 common pipistrelle and 13 brown long-eared) across one development site (hospital)	

Consultants' comments show surveys mostly find non-breeding roosts with small numbers of common and widespread species. The responses in Table 5.3 do indicate that a small proportion of surveys discover roosts considered by SNCOs to be of moderate to high conservation significance; these 30+ roosts represent perhaps 1-5% of the surveys reported in this survey. Respondents classed 29.6% of roosts found as 'major' and 70.4% as 'minor'. One surveyor made the ecologically unlikely observation that "rare species [do] not occupy buildings that have to be surveyed for planning developments."

Table 5.4 Prevalence of each species amongst roosts discovered by surveys (data from question 4).

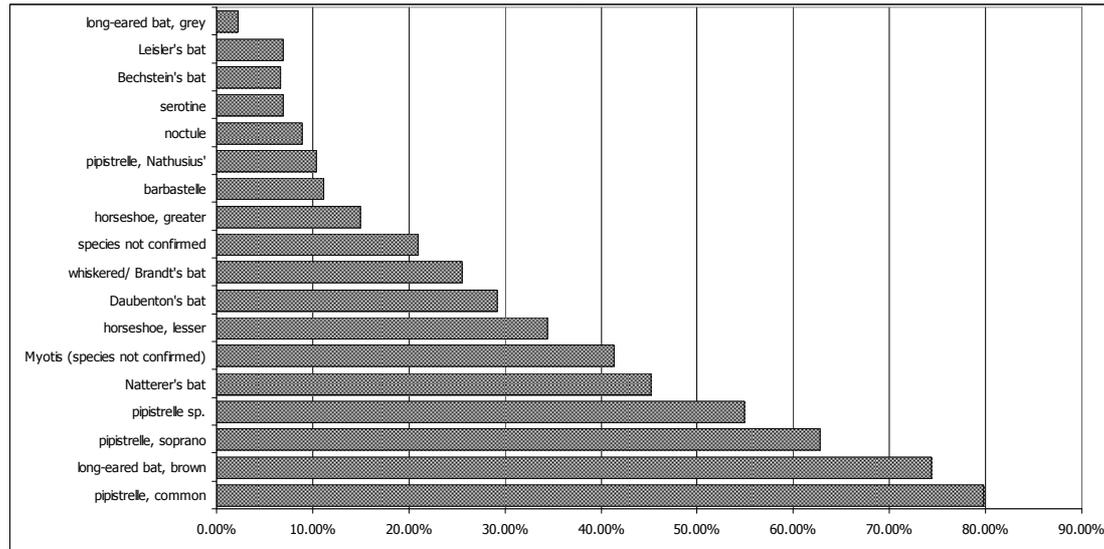
	<u>2008</u>		<u>2007</u>		<u>2006</u>		<u>average 2006-2008</u>	
<i>all pipistrelle combined</i> <sup>1</sup>	624	57.2%	477	57.6%	396	54.3%	1497	56.5%
common pipistrelle	248	22.7%	200	24.2%	160	21.9%	608	23.0%
pipistrelle (species not confirmed)	194	17.8%	133	16.1%	121	16.6%	448	16.9%
soprano pipistrelle	182	16.7%	144	17.4%	115	15.8%	441	16.7%
brown long-eared bat	184	16.9%	139	16.8%	103	14.1%	426	16.1%
Natterer's bat	59	5.4%	53	6.4%	53	7.3%	165	6.2%
lesser horseshoe	35	3.2%	37	4.5%	34	4.7%	106	4.0%
Myotis (species not confirmed)	55	5.0%	22	2.7%	23	3.2%	100	3.8%
barbastelle	30	2.7%	15	1.8%	20	2.7%	65	2.5%
Daubenton's bat	24	2.2%	16	1.9%	22	3.0%	62	2.3%
whiskered/ Brandt's bat	20	1.8%	15	1.8%	22	3.0%	57	2.2%
species (not confirmed)	23	2.1%	12	1.4%	8	1.1%	43	1.6%
Bechstein's bat	7	0.6%	10	1.2%	19	2.6%	36	1.4%
greater horseshoe	8	0.7%	10	1.2%	4	0.5%	22	0.8%
serotine	4	0.4%	6	0.7%	8	1.1%	18	0.7%
noctule	6	0.5%	6	0.7%	6	0.8%	18	0.7%
grey long-eared bat	2	0.2%	4	0.5%	7	1.0%	13	0.5%
Nathusius' pipistrelle	6	0.5%	4	0.5%	0	0.0%	10	0.4%
Leisler's bat	4	0.4%	2	0.2%	4	0.5%	10	0.4%
<b>Roosts discovered</b> <sup>2</sup>	<b>1091</b>		<b>828</b>		<b>729</b>		<b>2648</b>	

1. Combining the totals for common, soprano and unconfirmed pipistrelles.

2. These totals are lower than the totals of roosts reported in Question 1 and shown in Table 5.1; this is a result of fewer respondents answering Question 4.

Asked how many roosts of each species were found, consultants reported comparable rates across years for the prevalence for each species (Table 5.4, Figure 5.1). Some species seem under-recorded e.g. Daubenton's bats, and perhaps noctule, while others appear rather over-recorded, e.g. brown long-eared bat, and even Bechstein's bat. Relatively few roosts were not identified to species level.

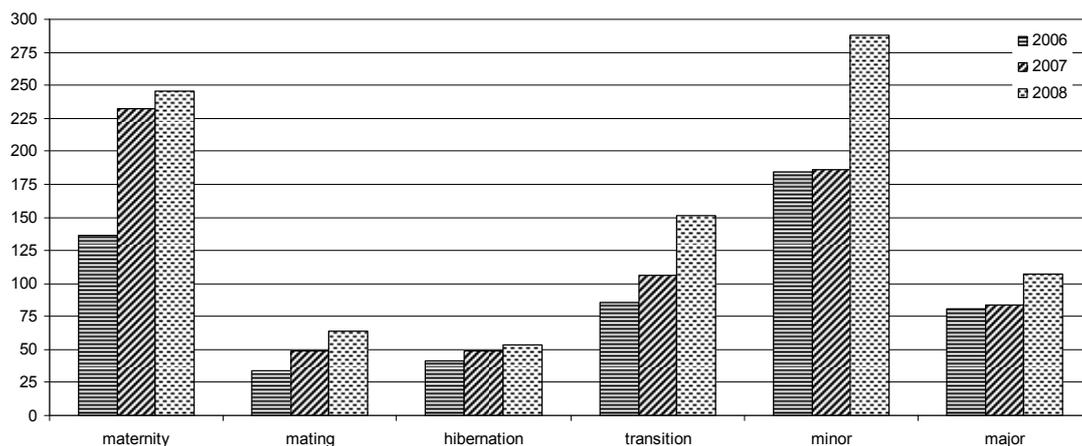
Figure 5.1 : Percentage of bat consultants finding roosts of each species



About 80% of consultants found maternity roosts; most (c. 50%) found only between 1 and 3 maternity roosts per year. Mating roosts were found by c. 50% of consultants but it was rare for more than 1-3 such roosts to be found. Hibernation roosts were also found by c. 50% of consultants; and about 10% found several each year. Transition roosts were found by 60% of consultants. More maternity roosts are found than transitional or mating roosts probably reflecting a greater focus on the conservation of maternity roosts, although bat populations “may require simultaneous protection of a maternity roost, a variety of summer day roosts, a variety of summer night roosts, and a number of hibernacula” (Agosta 2002).

The responses covered a total (based on summing median category values) of 514, 436 and 297 bat roosts in each of 2008, 2007 and 2006, of which 48.9% were maternity roosts, 11.7% mating roosts, 11.8% hibernation sites and 27.5% transitional roosts.

Figure 5.2 Numbers of each different roost type found during bat surveys.

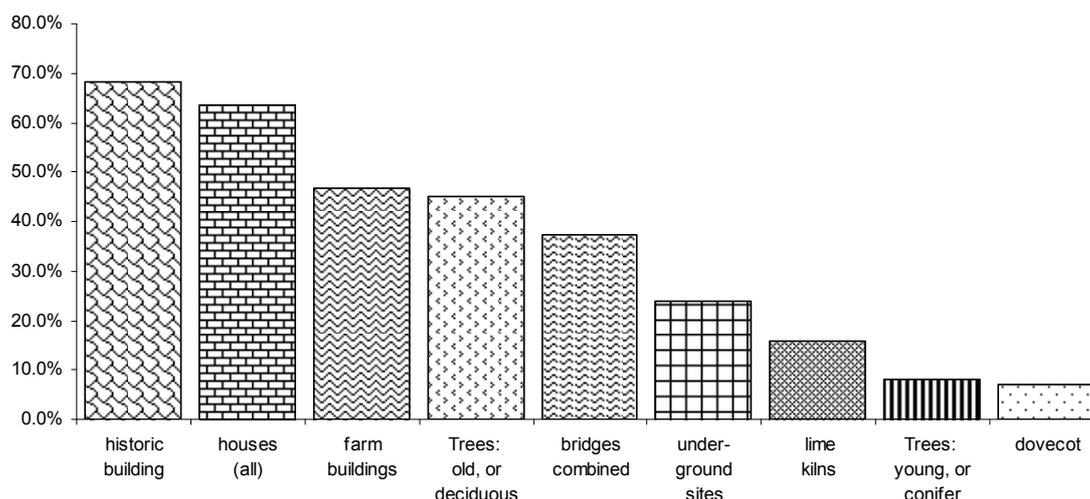


**Where do bats roost on development sites?**

Twenty-six categories and sub-categories of possible development site features were offered, as many as 1 considered reasonable, and consultants were asked which they found associated with roosts. Of the individual sub-categories offered, farm out-buildings scored highest, with 75.4% of consultants reported bats to roost in this kind of building. Experience, however,

shows these are still often not surveyed for bats prior to development. Houses of all kinds, historic buildings and mature trees all scored over 50% (see Figure 5.3). However, as there were no strong distinctions between sub-categories, the results were grouped (as shown in the data table in Supplementary Information CD-ROM). Half of all consultants found bats to roost in “Houses built post-1970” (50.9%), probably largely due to the abundance of common and soprano pipistrelle bats represented in the roost data.

Figure 5.3 Frequency of association observed by consultant bat surveyors between roosts and certain site features



Associations of bat roosts with certain building features were also investigated (Table 5.5). Within categories of roofing structure ridge tiles and slates are most preferred, with surprisingly high rating given to pantiles, stone (which is surprisingly high considering how few areas have stone roofs), corrugated asbestos cement, and metal sheet roofing (including lapped sheet).

Table 5.5 Association of bat roosts with building construction features, amongst roosts discovered by surveys (data from question 7).

ROOFING MATERIALS		
ridge tiles	39	68.4%
slate roofing	37	64.9%
tiled roofing	28	49.1%
pantiles	21	36.8%
bitumen roofing	23	40.4%
stone roofing	17	29.8%
corrugated asbestos roofing	16	28.1%
corrugated metal roofing	15	26.3%
lapped metal sheet roofing	3	5.3%
thatching	1	1.8%
WALL CONSTRUCTIONS		
stone walls	34	59.6%
brick walls	31	54.4%
cavity wall	31	54.4%
wood-clad walls	27	47.4%
cement block walling	11	19.3%
wooden roof trusses	28	49.1%
tiled walls	16	28.1%

## OTHER FEATURES

barge board	42	73.7%
soffit box	37	64.9%
loft insulation	15	26.3%
building with large opening	1	1.8%
boarded up windows	2	3.5%
hanging sacking / clothes	1	1.8%

Asked about development site habitat features found to be associated with roosts, most consultants cited rural location, deciduous woodland, rivers, ponds, parkland, and hedges, but contrarily almost 60% also found a link with sub-urban areas. Significant links (i.e. >25%) were also observed with lakes (47%), canal, scrub, improved pasture, urban areas, species-rich grassland, ditches, urban parkland, conifer woods, street-lighting, marshland and reservoirs (28%).

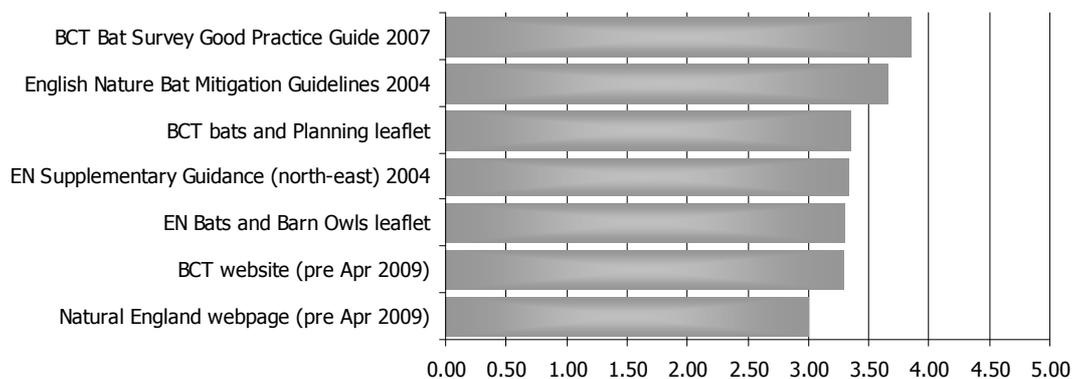
Four responses in the 'other' category included sewage farms (2) and ancient woodland (1) and also, perhaps surprisingly, arable land (1).

### Consultants' Satisfaction with Current Practice

Consultants' were quite evenly split over access to existing local bat records, with 52.6% feeling they have insufficient access, whilst 47.4% considered access to be adequate.

There are many existing, sometimes conflicting, sources of guidance, with significant gaps e.g. regarding wind turbines, and trees though some guidance documents are seen to operate well. Satisfaction was generally poor to average with the available current published guidance on bat surveys (Figure 5.4). Responses were treated as Rating or Likert-Type Items (Clason and Dormody 1994), and given a numeric score from zero (unsatisfied) to five (excellent) and the responses for that guidance pooled to find an average satisfaction score, with 2.50 being average (OK). Scores for all the included guidance documents were above average, but only the BCT 2007 Good Practice Guide scored over 3.85 (satisfactory; median 4, mode 5). Twenty respondents rated the BCT document as "excellent". The 2004 EN Bat Mitigation Guidelines still scored highly, at 3.65, a very good rating considering it is now 5 years old (median 4, mode 4).

Figure 5.4 User satisfaction ratings for various guidance documents (question 11): 0.00 unsatisfactory, 2.50 neutral, 5.00 excellent.



Concern exists that LPAs and SNCOs take an inflexible interpretation of guidance rather than allowing for (and indeed valuing) competent experienced consultants to apply their expert opinions; developers feel penalised by inflexible application of guidance, and thus may hide presence of bats or remove bats prior to application. Asked for suggested improvements, several respondents sought the adoption of a 'reasonable' approach especially by SNCOs and LPAs, rather than taking guidance as 'gospel', and the ability to consult with SNCO *et al* re the scope of survey.

Existing survey methods are considered by some to not provide sound ecological data for assessment of potential population impacts<sup>1</sup>.

My questionnaire overlooked inclusion of the Northern Irish guidance (Higgins 2008), which was published during this investigation and there is no equivalent guidance published for Scotland. The Vincent Wildlife Trust book on Lesser Horseshoe Bats (Schofield 2008) was praised by two consultants as showing real good practice in survey and mitigation.

While 38.9% of bat consultants' clients are happy to accept the time and cost requirements for bat surveys, at least 60% of bat consultants' clients are unhappy with the costs or delays involved<sup>2</sup>, particularly as this work often arises late in the course of development, requiring redrawing of plans, alterations to specifications, and delays in work schedules.

One developer was afraid of their wind farm being shut down as a result of the bat survey, while another client 'objected in principle'. The succinct summary provided by one bat consultant is probably widely recognisable:

"I have experience of every conceivable response! It's normally pretty grumpy however."

In the opinion of bat consultants, it is generally believed that LPAs do not require sufficient bat surveys, with only 30% agreeing that enough surveys are requested. However, once a bat survey has been undertaken, and recommendations for mitigation made in the bat consultant's report, 52.8% of bat consultants agreed (and only 22.6% disagreed) that LPAs take on board the mitigation proposals.

Although the current guidance is clearly viewed as helpful, further information and guidance was suggested by about half of the respondents. The suggestions are remarkably diverse, with very little concordance, though a few issues did stand out:

- better access to existing bat records, and a need to submit records to a database
- consistency of advice between LPAs, SNCOs, consultants, etc
- more use of case-studies and scenarios, with photos, to demonstrate appropriate methods and levels of effort
- clear guidance on timescales, methods, and for the BCT Guide to be made less generic, and more specific
- clear trigger criteria

<sup>1</sup> Comments included: "BCT survey guidelines are too minimalistic and do not offer sound baseline data for any EPS or ecological impact assessment survey" and "Basic recommended methods are not actually effective. No indication of sex of foraging animals and no indication of the size of breeding populations within an area can be extracted by these methods."

<sup>2</sup> Respondent comments: "... high economic cost ... unwillingness ... to help developers gain consent whilst helping bats is (and increasingly will) leading developers to ensure no bats are present when surveys are conducted." "consultants are under constant pressure from informed clients to cut down the scope of surveys to the minimum that they can get away with and/or at sub-optimal times of year."

- more regional / northern and upland guidance
- baseline population data and guidance to support assessment of population impacts
- how to assess and sensibly mitigate for lesser roosts, i.e. where not a rare species, not a big roost
- some kind of method to restrict activity of poor quality, 'cowboy' surveyors
- detailed method guidance for larger landscape scale developments especially wind farms

Two further issues identified by a single respondent are considered to be of universal concern: "What constitutes disturbance to a roost?" and "How long before a disused roost is no longer legally considered a roost?"

### 5.3 Summary

This survey investigated the efficacy of bat surveys as a conservation tool, through the experience of specialist consultant bat surveyors.

Some construction features or building types are associated with presence of roosts: farm out-buildings are clearly well used by roosting bats, but are still too often converted without being surveyed for bats. However, bats' preferences are so catholic, and the features they use commonplace enough that other factors such as location and surrounding habitat must also be used in screening.

Bat surveys undertaken for development too often find no roosts, or only small roosts of the commonest species. There is an emphasis on seeking maternity roosts, perceived as of highest value, thus failing to address population conservation needs for a range of roosts and habitat. Developers spend many tens of thousands of pounds annually on surveys which appear to fail to secure the aims of the legislation and policy for bat conservation.

Some reassurance can be taken from the small number of surveys commissioned when bats are found during site works, but on a cautionary note many developers will simply overlook bats in such a case and thus many bat roosts are probably lost in this way.

The assessment of significance of roosts remains very subjective as there is no functional guidance on this. The significance of apparently disused roosts is unclear, resulting in all parties grappling with pressure to bend the strict protection of roosts and consider them as no longer roosts.

Nonetheless, assuming a worst-case scenario where no surveys were undertaken for bats and all roosts were lost, the potential cumulative impact of loss of all these individually less significant roosts could still have potential population-scale impacts.

The significance of any roost is probably harder to define than may at first appear, although some working definitions have been set in the UK to guide designated sites: for SSSIs, nationally rare species, and large roosts of commoner species (JNCC 1989: part 13); for Habitats Directive Annex II EPS SACs<sup>3</sup> (McLeod *et al* 2005). In practice, it will be very rare that development surveys will discover a roost significant enough to become a designated site, thus determination of significance requires other measures. The typical size of roosts has been reviewed in a Scottish context (Swift 2004), but no guidance published.

The controversy between those promoting conservation of biodiversity 'hotspots' or 'coldspots' demonstrates the alternative paradigms guiding conservation planning (Kareiva & Marvier 2003; Ibisch & Bertzky 2006): does conservation of rarer species and diversity hotspots necessarily effectively conserve the commoner species, or is conservation of biomass and ecosystem services of common species more important than diversity of species?

Although guidance is improving, notably the BCT Good Practice Guidelines and the VWT Lesser Horseshoe Handbook, there is a strong desire for more consistency of advice and practice, and for clearer scenario-based advice based on sound science.

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<sup>3</sup> Article 3 of the Habitats Directive requires a network of conservation sites to aid conservation of the 78 habitat types and 43 species identified in Annexes I and II of the Directive (as amended) and resident in the UK.

## 6 Discussion

### 6.1 Seeing through the fog: successes, gaps and limitations in current practice

At the outset of this thesis, I posed five questions (Table I.1) about the performance of LPAs in screening planning applications for impacts upon bats. This study of biodiversity screening for proposed developments investigated the current procedures (Chapter 2), their performance (Chapter 3), what stakeholders perceive to be issues (Chapter 4, 5), considers to what extent current practice offers effective protection to bats (Chapter 6) and suggests how the process and procedures could be improved to progress the conservation of bats at a landscape scale (Chapter 6).

A range of screening protocols are in use or development, acting as tools applied in resolution of HWC: providing a route to indirect mitigation during development, by increasing human tolerance of bats via their legal protection. The protocols act to focus attention on bats and to objectivise the requirement for bat surveys and mitigation, thereby reducing animosity between developers and LPAs. However, there has been widespread dissatisfaction with the way that bat issues are dealt with in the local development management process. Through investigation of the various aspects of this process, weaknesses in the different process strands become evident. I discuss these issues and review the factors which may be useful to improve future practice, with recommendations for possible enhancements and future research.

There was not scope within this study to develop and test a viable screening protocol. Principles and methods for the design of protocols are considered in Sections 6.2 and 6.3, and suggestions made for further work (Section 6.3). A draft flowchart of a screening process is discussed in Section 6.4 (Figure 6.2) along with potential methods to progress enhancement of the screening process.

#### Current Procedures for biodiversity screening

LPA staff show awareness of that bats and their roosts are well protected in law at all times – but adoption and implementation fall short, for a number of reasons. The mix of regulations and guidance is extensive, confusing even to experts, yet complaints are still made of a lack of practical detailed guidance. Consideration of protected species in land-use planning has been described as “an impenetrable fog” (Gillespie and Rasey 2003), a sentiment evident among planners, developers and ecologists alike. Although some improvements have been made, which address specific issues described by Gillespie and Rasey, this study has shown uncertainty is still widespread in this field, supporting previous studies (BCT/BMT Cordah 2005; Scott 2007).

Over 15 years since the introduction of the legal obligation there remains great inconsistency in its interpretation and application through LPAs, and SNCOs. Gaps in scrutiny affect such works as demolition, wind turbines, lighting, bridges, and roof conversions where bats are often not thought to be material. The onus to provide the necessary information for such assessment remains with the developer, but support has been provided through LPAs and SNCO.

Nonetheless, commercial bat survey activity has increased exponentially over ten years, and is associated with steep increases in bat detector sales. Concurrently, SNCOs are pulling back from direct involvement in the bulk of development proposals, and LPA budgets are being cut despite acknowledged natural heritage skills gaps.

Current initiatives are making some strong progress, e.g. through the 1App Application form and associated Local Validation Requirements, and the online Biodiversity Toolkit.

#### How well do biodiversity screening protocols perform?

For those LPAs who have adopted some form of biodiversity screening, the process is hampered by the generally poor sensitivity and specificity of available guidance, which requires input from suitably skilled staff, who are in short supply. Data on local distribution of bats is often inaccessible.

In a sample of planning applications to one LPA, only 1% involved a bat survey, despite 22% of applications sampled being of potentially high risk to bats. Scott (2007) reported an average rate of 3% across English LPAs, ranging from 1% to over 10%. Innovative LPAs are now using GIS systems to screen all applications for potential biodiversity issues, and this system shows great promise; it is hampered in many areas by the lack of accessible biotic distributional data.

The 1App Application form biodiversity question and Local Validation Requirements are being well used by some LPAs to ensure applicants provide sufficient information on bats and other potential issues, but in other areas the question is seen as a mere box ticking exercise.

#### Issues raised by stakeholders (planners and bat consultants)

There is a de facto focus on roosts of rare species, or maternity roosts with very large numbers of bats which fails to address the true population conservation needs at a landscape scale, and undervalues other roost types and habitat features.

Practitioners find a lack of clarity in the available guidance, resulting in patchy application and variable interpretation, with some treating it as rigid requirement and others applying it with great selectivity. Numerous gaps exist in guidance: local variations, development types, disturbance, roost disuse, significance, cumulative impacts, etc. The lack of natural heritage skills in LPAs further dilutes the message. This inconsistency causes friction and uncertainty with developers and their contractors, exacerbated by a lack of effective planning enforcement or judicial penalty relating to biodiversity. In practice it may seem cheaper and simpler to ignore the legislation and pay the fine if caught than to undertake appropriate surveys and mitigation.

Survey guidance is criticised for being unrealistic and too general; use of scenario-based examples, and a wider evidence-base would make survey methods more realistic. The case for mitigation works is poorly evidenced, and success cannot be guaranteed for a large proportion of the money spent on it; research and monitoring is required to demonstrate cost-effective measures.

The review of screening protocols, and experience expressed in the survey responses suggests that although much good work is achieved, there is a high degree of failure in meeting the express conservation objectives of the primary legislation which lies behind the

process. This supports the findings of Scott (2007) who investigated bats and development in English LPAs in 2006.

#### Does current practice offer effective protection to bats?

Loss of bat roosts is a key threat (see 1.4.2) and their legal protection is 'absolute'; the principle of no net loss has been recommended by English Nature (Mitchell-Jones 2004), but is not upheld in current practice; attention is focussed on high value roosts, and many high and medium risk developments are not surveyed for bats at all. Furthermore, the maintenance of suitable habitat surrounding roosts is little considered in most cases despite its implicit protection (Garland and Markham 2007). Where roosts are lost, planners, consultants and developers all admit reluctance to put resources into unproven mitigation schemes.

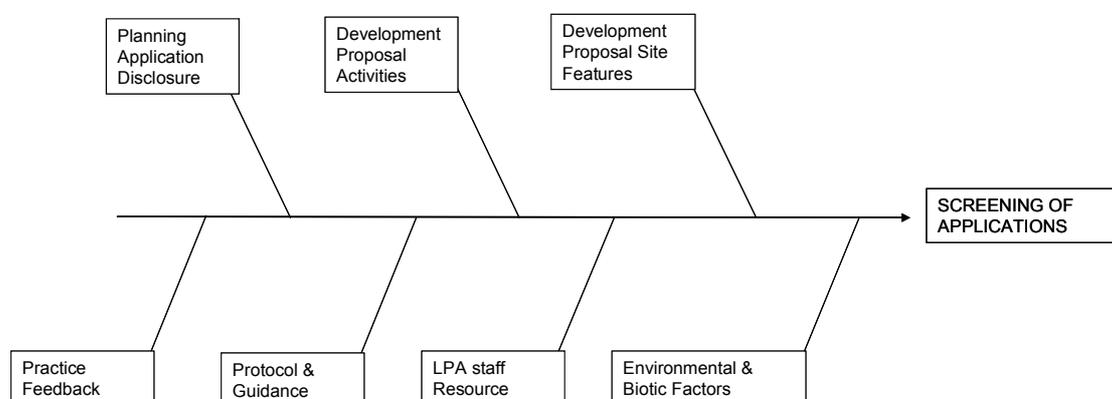
Most guidance and screening protocols play down the value to roosting bats of more modern buildings, such as are favoured by pipistrelles, and thus fail to encourage due survey and protection of these populations. The national populations of soprano and common pipistrelle are not considered at risk (Robert Raynor, SNH personal communication; Mitchell-Jones and Carlin 2009) and licenses are routinely granted for domestic roosts to be excluded without provision for an alternative roost space.

Indirect and cumulative impacts from development are currently not specifically addressed in the development management process, except for some larger developments under the EIA Regulations, but these usually make simplistic assessments lacking due rigour. Thus, despite the effort spent by LPAs in screening development applications, losses of many roosts are likely and landscape scale habitat degradation and extinction debt remain significant risks.

#### How can performance be improved?

Figure 6.1 identifies seven factors which come together in the screening process, and which could be addressed to pursue increased efficacy. These factors are discussed in detail in Sections 6.2 and 6.3, and the key points outlined below.

**Figure 6.1 Ishikawa diagram summarising the types of factors which may be addressed to try and improve the process.**



Perhaps the single key issue is the lack of political support in upholding the existing protection and regulations. For HWC mitigation measures to be successful, adequate high level support

from champions and stakeholders is critical (Woodroffe *et al* 2005). The current lack of support for biodiversity within local government is shown through: the poor natural heritage skills base, the lack of effective enforcement, a lack of coordinated biological records management, little monitoring or review of mitigation; issues also noted by Scott (2007).

Gillespie and Rasey (2003) observed that the presence of bats should be 'revalued', ensuring that stakeholders consider bats as seriously as their highly protected status would suggest:

“Third parties delay development by claiming to have seen a protected species. This devalues the species to developers”;

“At the moment mitigation costs can greatly outweigh the cost of a fine for destroying the protected species or its habitat”.

Responses to the current survey also suggest that LPA staff do not respect the highly protected status of bats, and the potential liabilities that they and their managers are open to if there is not due consideration made. Developers and their advisors often believe they do not need to survey for bats unless the LPA asks for it – leading to frustration and delays.

Few of the HWC intervention methods considered by Treves *et al* (2009) can be usefully applied to bats under pressure from development in the UK. A clear nationally consistent message that “bats will be considered, you will be asked for information, be ready” would encourage adoption of timely good working practices. Achieving the clear support of political and industry stakeholders would pave the way for progress in all other areas, as this would raise expectations of a thorough process.

To build such support requires champions across the sector, greater stakeholder cooperation in process development, awareness-raising (such as further inclusion of biodiversity in all planning courses), and effective enforcement and penalties.

ALGE are making strong steps as a champion of biodiversity in LPAs, and their 2004-2010 Vision Statement provides a framework for progressing the conservation of biodiversity through sustainable development (Oxford 2004). The BCT are also an effective champion and are engaging with all sectors to develop good practice, such as the Bat Survey Good Practice Guidelines (BCT 2007a).

Wider tolerance of the need for adequate surveys and mitigation can be encouraged through promotion of consistent, clear, practical and comprehensive guidance. Plugging the gaps will help reduce the frustrations of uncertainty and inconsistency. The online Biodiversity Toolkit offers potential to develop into this role, providing a library of key guidance, but revision of printed guidelines will also be needed.

Further reform of the standard application package should include the biodiversity question for all countries, and for all development types. The national requirements should set a basic standard for biodiversity information submissions, with local requirements allowing scope for highlighting local concerns or issues (e.g. for horseshoe bats in the south and west). Given the widespread ease of access to digital imaging now, all applications should include a suite of site photographs, which would greatly aid planning officers in determining potential biodiversity issues, such as the risk of presence of bats. The declaration should also allow for the option to indicate presence of bats but with no risk of impacts.

Over a longer time-scale, research and monitoring projects should be encouraged to address some of the key knowledge gaps, such as bat population sizes and dynamics across the UK,

and their likely response to varied cumulative impacts. The systematic and objective review of screening processes, bat survey methods, and mitigation could significantly increase conservation gain (Sutherland *et al* 2004). Modelling could develop useful predictive tools for evaluating potential risk to bats from different development types, thus guiding choice of survey methods. Such modelling would also support the development and conservation of habitat networks in support of the Habitats Directive Article 10, and the consequent assessment of potential risks from proposed changes to the network.

Acceptance of the need for surveys, and the limited seasonal survey windows, will reduce frustrations caused by bat issues arising at a late stage, reducing the severity of impacts; industry participation in landscape scale biodiversity projects, which could provide cost-effective compensation for minor losses would increase tolerance; industry participation in design of the screening process, to ensure that cost of surveys and mitigation are well targeted would also likely increase tolerance.

CCW have engaged in research which addressed conservation of bat populations at a landscape scale, and the potential impacts of development, and proposing seven enhancement measures, as in Table 6.1 (BCT/BMT Cordah 2005).

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Table 6.1 Recommendations of the CCW study of bats in a fragmented landscape: seven measures specifically to aid bat conservation (BCT/BMT Cordah 2005)

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- clearer, more robust planning policies re bats
  - question re impacts on bats/EPS in the application form
  - validation to include information needs re EPS
  - where bats may be material, clear indication to developer of information requirements
  - independent good practice guidance on survey quality
  - quality advice re mitigation
  - robust policies within LPA to ensure receive all necessary information prior to determination
- 

Responses from LPA staff and bat consultants in the current study support the proposals in Table 6.1, but also highlight a need for clearer guidance on when bats are material, and for a higher quality threshold for surveys and reports.

I suggest that it is perhaps timely to consider a change of strategy towards planned national and regional biodiversity conservation networks (Margules and Pressey 2000; Sutherland *et al* 2010), based on predictive habitat modelling, which could adapt to changing climate and socio-economic pressures. This approach would sit well within the positive, proactive 'development management approach' being promoted through PPSI (ODPM 2005a; Planning Advisory Service 2010). In such a strategy individual bat roosts would remain important and protected but the robustness of populations could be strengthened. Mitigation banking could play a key role in implementing such a strategy (Sutherland *et al* 2010).

## 6.2 Good Design in Screening Protocols: Principles

I identified seven good design principles which could be applied to achieve better efficacy and implementation within the screening process. They are listed below, and then expanded upon below in Sections 6.2.1 to 6.2.7.

- Aims of screening
- Avoidance of Errors
- Accessibility
- Applicability
- Adoption
- Activity + Site + Habitat = Risk
- Adaptability

### 6.2.1 Aims of screening

Screening for the risk of impacts upon bats from proposed works should aim to permit a qualitative assessment of the risk factors, identify when significant negative impacts are likely, how those impacts may be mitigated and what response is appropriate.

It is reasonable to suppose that the highest risk levels can be more readily identified, such as impacts affecting SACs designated for Annex II bat species, known maternity bat roosts, etc. Similarly, very low risk planning applications will be simpler to identify, such as bare development sites with no roost potential and poor foraging habitat. However, expert consideration would be needed to properly assess the risk level between these extremes, to identify those where the potential impacts are significant enough to warrant survey.

The screening process must not be seen as a substitute for expert assessment, but rather as a guidance tool for filtering the mass of applications into manageable streams according to their likely risk level, and thus the likely effort required in scrutiny both within the LPA and by the developer. The process must balance the need for sufficiency of information against the reasonableness of survey and the likelihood of impacts, and the output must be robust enough to support the determination of material importance.

### 6.2.2 Avoidance of Errors

A good screening process will minimise the number of false positives and false negatives, and thus maximise efficiency. Screening tests against the null hypothesis that the planning application under consideration has no likely risk of significant negative impact upon bats. A protocol using simple robust characters, with good specificity<sup>1</sup> and acceptable sensitivity<sup>1</sup>, will minimise the number of both type I errors (false positives) which result in unnecessary delay and costs, and type II errors (false negative) which would result in excessive impacts upon bats. Where the hypothesis is inappropriate, as for example “that the application site has no prior record of bats” a type III error may occur potentially leading to poor sensitivity and

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<sup>1</sup> Sensitivity and specificity are two statistical measures of the performance of a binary classification test, such as whether or not bats are likely to be present at a site: sensitivity measures the proportion of actual positives which are correctly identified; specificity measures the proportion of negatives which are correctly identified.

many false negatives. Type II errors may also arise if the person performing the screening does not have sufficient specialist knowledge to assess the risk level.

### 6.2.3 Accessibility of language and design

A well designed document, in simple language, balancing brevity with comprehensiveness, and widely made available will be more likely adopted and implemented.

Protocols are almost exclusively printed written word, and there is ample guidance on print communication design principles (e.g. Tilden 1957; Ham 1992; Babbie 1994; Veverka 1995; Rogers 2003; SNH undated b). Freeman Tilden was one of the first to define good practice in written and verbal communication (interpretation), and for the past 50 years, Tilden's six principles (1957) have remained relevant and stimulated further research and development in practice. Among his key points are: make your material relate personally to the audience; do not mistake simple information for interpretation; do not aim simply to transfer information, but aim to provoke thought and learning. As a psychologist, Ham (1992) brought a physiological understanding that noted we learn best when we are happy, that the brain is predisposed to working with small groups of information, and information with a narrative structure. Research also shows that most people will follow the same order in viewing a page, thus the key message must be communicated by the main graphic features (headline, main graphic, and any sub-headings) and the main text can contain necessary details (SNH undated b).

Common principles of modern interpretive design are to use a simple layered structure, with a linking narrative theme, in highly readable language. Use information groupings (e.g. headings, bullet points) of three to five, or seven at a stretch. Layered content allows for access by different personal learning styles (i.e. use text, and graphics, and interactive sections).

Websites offer unparalleled potential for access to up to date guidance, with links to legislation and useful organisations, but the resources to maintain an up to date and comprehensive site would be considerable. Hosting via the national Planning Portal could provide added authority to guidance published on such a site.

### 6.2.4 Applicability

Guidance and protocols should speak clearly to their target audience, with up to date, relevant, and proportionate material covering the full scope of their needs.

LPA staff, developers and consultants all share a lack of certainty regarding development and protected species: "it's an impenetrable fog!" commented one LPA (Gillespie and Rasey 2003). One example is the disparity in treatment between commercial and householder applications, with it being often deemed "unreasonable" to seek in-depth survey or information from householders, while even small-scale commercial developers may be asked for extensive surveys and detailed mitigation plans. The legal basis for this distinction was not clear from the responses received. The 1App forms and guidance for householders also indicate a less onerous burden of evidence, having no Biodiversity and Geodiversity declaration question. The legal concept, interpretation and practical implementation of "reasonableness" presents a continuing challenge to LPA staff in gathering sufficient information to determine consents. The legal concept is ill-defined and indeed by its very

nature resists clear definition (Hickman 2004; Adinolfi 2009; Alexy 2009). Furthermore, the widespread application of reasonableness has been suggested to indicate arbitrariness and a lack of application of principles or criteria (Crist *et al* 2000; Hickman 2004). The Habitats Directive and UK implementing statutory instruments do not make a distinction on the basis of reasonableness.

Confusion also exists over requirements between types of development activity, such as renovation of a building (perhaps including some demolition) and demolition of a building. While the former requires a full planning application, the latter requires only a building warrant and thus typically receives lesser scrutiny. Furthermore, comments received make clear that views differ between planning staff about whether bats are a material consideration at all in some cases (Appendix 5: LPAq21). Scott (2007) found LPA officers almost evenly divided as to whether bats were material for LBC and demolition.

Penfold (2010) recommended unifying the planning and non-planning consents systems, which could ensure that all appropriate developments are screened for bat and biodiversity impacts. However, if LPAs are to achieve their nature conservation obligations it is imperative that clearer guidance is also provided, encouraging consistency of approach.

### 6.2.5 Adoption

Successful guidance / protocols are widely adopted and well-supported at all levels, providing benefits in consistency and transparency; the effective adoption of policies and legislation is a key outcome and indicator of success in policy-based conservation projects (Kapos *et al* 2009). The adoption of guidance and screening protocols reflects not only acceptance of the legal obligation but also respect for the purpose. A lack of stakeholder inclusion and feedback were major factors in failure of HWC mitigation (Webber *et al* 2007). This Planners also noted the importance of having simple input and output information: a system would not be used that is costly to implement, frequent updating and maintenance, or produced complex results that could not be directly applied (Rogers 2003).

Rogers (2003)<sup>2</sup> described rate of adoption for new innovations – slow at the start, more rapid as adoption increases, then levelling off until only a small percentage of laggards have not adopted, typical of an “s-shaped curve”. LPA responses show (Appendix 5: LPAq5) only a few planners do not consider bats as material for full planning applications; but screening for impacts upon bats is less well adopted for all other application types. This accords with other studies (Scott 2007; Heriot Watt 2008) and also the Scottish Executive advice letter to Heads of Planning (Scottish Executive 2006a).

Those who screen planning applications for bats will often be non-ecologists who have limited knowledge of bat ecology, yet the task requires making fine judgments about bats and the built environment. Such staff are adopting new practices, and experience a journey from ignorance to competence in new skills according to Maslow’s “Four Stages of Learning” theory (Maslow 1970, 1999)<sup>3</sup>. These staff need a sufficient level of understanding to achieve

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<sup>2</sup> For more detail, see footnote in Chapter 4, page 2.

<sup>3</sup>[http://en.wikipedia.org/wiki/Four\\_stages\\_of\\_competence](http://en.wikipedia.org/wiki/Four_stages_of_competence): “The conscious competence theory is another name for the “Four Stages of Learning,” a theory posited in the 1940’s by psychologist Abraham Maslow. The Four Stages of Learning are an explanation of how people learn something, progressing from 1. Unconscious Incompetence (you don’t know that you don’t know something), to 2. Conscious Incompetence (you are now aware that you are incompetent at something), to 3. Conscious Competence (you develop a skill in that area but have to think about it), to the final stage 4. Unconscious Competence (you are good at it and it now comes naturally).”

Conscious Competence, though it is critical that they should at least reach the stage of Conscious Incompetence so they can appropriately seek expert input.

Key objectives to encourage adoption include: education and awareness-raising through professional networks; enforcement and endorsement by government and industry bodies; demonstration of support from champions within stakeholders.

### 6.2.6 Activity + Site + Habitat = Risk

A reasonable and robust assessment of the risk of impact to bats for any particular application must consider the potential for the site to support roosting or foraging bats but also the proposed activities and how these might impact on any bats that may be present.

The key stages in this risk assessment process are:

1. identify relevant site characters (*site factors*)
2. identify relevant development activities (*activity factors*)
3. consider the surrounding habitat network (*habitat factors*)
4. apply appropriate weighting to each of these factors, allowing a calculation of the level of risk, and thus placing the proposals into a *Risk category*.

There must remain an option to conclude that although bats are present, there is no significant risk, e.g. where a building is a known bat roost but the proposed works affect only a different part of a building, as in the Staffordshire County Council (2008) local validation requirements.

Bat species use the landscape differently, having preferences for habitats such as water, woods, connective treelines or similar (e.g. Oakeley and Jones 1998; Entwistle *et al* 2001; Smith and Racey 2005). Some species preferences have been identified such as for brown long-eared bats (Entwistle *et al* 1996, 1997): warmer, more complex-roofed old properties, close to woods. Known roost preferences have been reviewed and summarised by various authors (Altringham 2003; Mitchell-Jones 2004; Swift 2004; BCT/BMT Cordah 2005; BCT 2007a; Jones *et al* 2009a; etc). However, bats may use virtually all buildings (Glendell and Bullock 1999), thus construction characteristics are largely ineffective predictors for use by bats.

Modelling may allow prediction of areas with higher probability of presence for each species to assist in screening applications via GIS. Ecological niche factor analysis (ENFA) and modelling have been trialled to predict the likely distribution of bat species (e.g. in Switzerland, Sattler *et al* 2007; and in Spain, Rebelo and Jones 2010), and with further development this may assist in risk assessment for development survey.

The more bat survey effort is spent, the more roosts will be found, reflecting the accumulation curves observed for species richness (e.g. Kirby *et al* 1986; Smith and Racey 2005; Kingston 2009). A small stone tunnel visited weekly for 24+ months has continued to yield new roost locations, typically used by one or two bats (unpublished personal observations). Although the individual loss of such a small roost would have no significant impact upon populations, widespread loss of 'minor' roosts is considered potentially

significant (Knight and Jones 2009) and English Nature recommended no net loss of roosts (Mitchell-Jones 2004).

### 6.2.7 Adaptability

Protocols should allow for inclusion of 'local' factors such as idiosyncratic building design features, or species variations, new emerging issues, and to allow refinement through operational feedback. Some examples of emerging issues which are currently not well addressed are introduced below.

#### Regional Construction Variations

Vernacular construction methods vary, offering different cavities, and thus familiarity with local building styles aids assessment of potential impacts, and avoids the risk of under-rating the potential impacts on bats. Local construction methods in East Anglia have been related to use by bats (Finnemore 2008).

#### Bats and Open Habitats

The National Bats and Habitats Survey showed that bats under-utilise open and upland habitats in comparison to availability, a finding widely reported as 'avoidance'<sup>4</sup> (Walsh and Harris 1996a, b). However, bat surveys for proposed wind farms in such terrain have shown bats to be widespread (personal observations) with Daubenton's bats up to 700m in the Scottish highlands (Davis 2009 personal communication). These observations mirror the unexpected Swedish observations of resident bats as well as migrant bats foraging 10km out over the open sea (Ahlen *et al* 2007). Foraging use of such areas may respond to weather patterns, transient populations of insects, and other poorly understood influences and may attract high risk species such as noctules close to wind turbines. It should be acknowledged that bats do not 'avoid' such habitats, but rather they normally select for other habitats offering better foraging opportunities.

#### Wind Turbines

For reasons of over-riding public imperative connected with carbon emission reductions the UK requires wind energy to be exploited (Ellis *et al* 2009). Survey and assessment guidance exists at a European scale (Rodrigues *et al* 2008) and a UK scale (Natural England 2009a; Mitchell-Jones and Carlin 2009). Responses from across the industry indicate that although helpful in setting a framework, users find them lacking in practical detail (personal observations). I would argue for a new approach in the UK, where at national level it is recognised that:

- the UK government accepts that some bats will inevitably be killed by turbines;
- these deaths are unlawful under strict reading of the WCA (it is unlawful to kill or recklessly allow to be killed even a single bat);
- given our insufficient understanding of population levels and potential impacts we cannot properly fulfil the assessment of impacts under The Habitats Directive;
- to ensure maintenance of FCS and following the precautionary principle, we must urgently investigate the scale of mortality, and mitigation methods;
- a strategic national programme of research is required to progress these urgent investigations of the true impacts, and to prove mitigation methods.

Trials in USA, Canada and Germany show great promise for substantial mitigation of bat mortality at wind turbines (e.g. Baerwald *et al* 2009).

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<sup>4</sup> 'Avoidance' was applied in this paper as statistical jargon to indicate under-utilisation in relation to availability of such habitats (Neu *et al* 1974) and not in the common English dictionary sense of "act of evading, escaping, shirking or shunning" (Anon 1998).

### Cumulative Impacts

Although the EIA approach is now established within the development control system, it has been criticised for structural failings, lacking sensitivity to ecological resources of local significance, failing to address impacts beyond the development site, attending mainly to notified sites and species, and lax cumulative assessments (Cooper and Sheate 2002; Latimer 2009). A review for English Nature noted that, despite scarcity of relevant data, “cumulative effects are an increasingly significant threat to biodiversity in England” (LUC 2005). SNH and CCW also highlighted need for more focus on cumulative impacts (SNH 2002; BCT/BMT Cordah 2005). Climate change and increased food demand may significantly reduce available foraging habitat in coming decades (Sutherland *et al* 2008). The “death of a thousand cuts” may be affecting British bat populations, although it is also likely that existing population estimates are inaccurate (Morris 1993; Harris *et al* 1995).

GIS also offers a valuable tool for predicting and monitoring the cumulative effects of development (Theobald *et al* 1997).

## **6.3 Good Design in Screening Protocols: Supporting Resources**

From the comments received and analysis of effectiveness of the existing protocols I suggest seven key resources which would substantially enhance the screening process. These are briefly summarised and expanded upon below.

- Advance Information and Awareness About the Need for Bat Surveys
- Disclosure via the Application of all Relevant Information
- Existing Contextual Bat Data
- Expert Ecological skills
- Guidance Fit for Purpose, Up to date, Relevant
- Support and Trust: Political, Managerial and Industry
- Understanding of Bat Population Dynamics

### **6.3.1 Clear advance information about the need for bats surveys**

Applicants would undertake timely bat surveys proactively if their experience and perception were that bat surveys are routinely required to inform the validation and determination process.

Developers seek to maximise efficiency, minimising costs through management of resources and timescales, but are frustrated by the almost capricious attitudes of LPAs to bats and development. Many developers encounter requests for bat surveys at a late stage resulting in a protracted determination period (Gillespie and Rasey 2003), perhaps after months of deliberation over architectural and other details. If their experience, and perception, became that bat surveys are routinely required to inform the validation and determination process then they would work within that system. They would more willingly accept robust survey proposals from suitably experienced consultants, and to ensure that timely surveys were undertaken in the appropriate season to avoid delays. Bat consultants would be less pressured to undertake a rushed survey at a sub-optimal time of year as is too often the case

now, providing better information to the developer and LPA, and providing a better assessment of bat presence or absence.

### 6.3.2 Disclosure of all relevant information with the application

The use of a standard biodiversity disclosure form with specific mention of protected species (especially bats) is recommended, forming part of the application, and thus required for validation.

The inclusion of a standard question about biodiversity is an important foundation to establishing if bats may be material. However, this study (Appendix 5: LPAq11, q12) has shown that the biodiversity disclosure requirement in the IApp form is often not fulfilled, either the applicant does not sign it at all, or inadequate assessment has been made by the applicant. Furthermore, some LPAs (10-25 %) still validate applications without any reference to nature conservation issues (Appendix 5: LPAq11, q12). Careless use of this question will lead both applicant and LPA to a false sense of security, believing that biodiversity issues have been dealt with, leaving Question 14 to become a 'red herring'. Expert scrutiny within the LPA would place a higher value on the answers provided, and would raise the level of pre-application assessment testing the applicants' assertions.

### 6.3.3 Access to and Use of Bat Data

Currently, disparate sources of poorly validated data are seldom available in a single, accessible, comprehensive and relevant format, and suffer inconsistent variables and scant metadata. These deficiencies have occasionally been addressed systematically by e.g. Somerset Environmental Records Centre (SERC<sup>5</sup>), and on a national scale the National Biodiversity Network (NBN) pursues good access to UK biodiversity data for all (NBN 2004). The problems inherent in access to bat data are reflected for many taxa and habitats.

Existing records of bats should be combined via GIS with habitat suitability data, to allow LPAs to screen for known bat roosts, and their key associated habitats; such data would also support the development of habitat networks and implementation of the biodiversity duty. Such data should be viewed with the caveat that it shows the spread of observer effort; bats are highly mobile and cosmopolitan and should be expected to use almost any site in the UK, including offshore.

The use of GIS for registering planning applications is widespread, and this offers an ideal platform for sophisticated screening against existing bat data and important bat habitat. Such data layers are best managed through local biological record centres. LPAs should require developers to submit all natural heritage records to the local BRC, and provide a standard format for required data (Latimer 2009); these could be included with the planning application, or submitted later under a planning condition.

There is no explicit requirement under the standard bat surveyor's *licence* to submit bat records to the SNCO although this was once a standard condition, explicit in the bat licence conditions. This licence condition should be resurrected and enforced. The details of roosts discovered during development surveys would thus be harvested and contribute to a wider public benefit. This would assist in the gathering of data valuable for studies of favourable

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<sup>5</sup> <http://www.somerc.com/>

conservation status, species distribution, species roosting ecology and the efforts of public bodies to fulfil their “biodiversity duty”.

Filling the data gap is a high priority according to many studies (e.g. Oxford 2004; Lott 2006; Tyldesley 1999; BCT/BMT Cordah 2005; Scott 2007; etc.) and this study supports this recommendation. While SNCOs are supporting the development of a complete network of LRCs (NE and SNH), data still languishes with consultants or in reports rather than being shared through LRCs. LPAs such as Teignmouth DC are innovators in addressing this gap, and with support from SNCOs and LPAs this could soon become the norm.

Reviews of the habitat and roost preferences of British bats (e.g. BCT/BMT Cordah 2005; Jones *et al* 2009a; Boye and Dietz 2005; BCT 2007a) highlight that a few species have specific associations which can aid in screening, but the diverse landscape and shifting patterns of bat activity make it difficult to make strong predictions (Fenton 1997). Where sufficient distributional and autecological data are gathered, screening protocols can be refined, and predictive habitat niche models could provide useful land-use planning tools supporting the development of effective habitat networks.

### **6.3.4 Expert natural heritage skills**

Development management teams should have access to expert ecological skills, ideally directly as in-house staff, with external support from SNCOs through a service agreement.

This study has shown that the assessment of potential issues with bats often involves LPA ecologists or biodiversity officers (in c. 35% of LPAs), but that for c. 20% of LPAs the planning officer themselves makes this assessment, and in a further 20% no specific role exists for this assessment – indicating a significant skills gap. The most efficient mode of provision would be via specialist expert staff employed directly in support of the planning service, as proposed by ALGE (Cooper undated; Oxford 2004).

Partnership working between planning regulators and consultants has been successfully trialled in Western Australia, and offers potential not only to make expert skills available but also to ease the regulations process (Morrison-Saunders & Bailey 2009).

#### Current initiatives:

Support from central government, SNCOs and NGOs is directed to capacity building of natural heritage skills within degree courses and CPD, such as these two opportunities: the SNH Sharing Good Practice event series, focussing on natural heritage issues, included a series of “making sustainable places “ training events in 2008/09 connecting planning students with natural heritage issues (SNH 2009), and the series of events is being continued into 2010; the University of Oxford is offering “Delivering Biodiversity: Planning Obligations and the NERC Act 2006” as a CPD course (Oxford University 2009).

This skills gap is probably mirrored amongst ecologists and biodiversity officers, with few having any formal planning qualification or training. Furthermore, those employed as “ecologists” often have a single area of specialist expertise, most often ornithology. Due to the current requirements of development surveys many ecologists develop basic skills and experience across a range of subsidiary taxa such as common plant communities, mammal signs and increasingly for bats and amphibians (personal observation).

### **6.3.5 Fit-for-purpose, up-to-date, relevant and accessible guidance**

Development of a 'Biodiversity Portal' accessible on the internet, with targeted pages (e.g. "Developer", "Planning Authority", "Consultant", "General Public") and hosting widely adopted and up to date guidance such as the Biodiversity Toolkit will be widely welcomed.

Many consultants and developers experience radically different survey demands between LPAs, with policy and personal variations. LPAs may receive differing consultation responses according to which SNCO area officer is contacted. These differences create problems for all parties throughout the development process. It can make the tendering process difficult with developers unwilling to accept a tender because they have been required to undertake less elsewhere; and consultants must second-guess the level of effort that will be required by the local LPA and SNCO officers. A consistent approach and message across the industry would facilitate good practice in the survey, assessment, reporting and mitigation for bats.

### **6.3.6 Political, managerial and industry support and trust**

The support of "champions" such as managers in LPAs and industry, support from stakeholders, and enforcement of legal penalties would encourage good practice, bringing faith and trust to the process.

Mitigation of Human-Wildlife Conflicts can include use of sanctions with enforcement, but field observations suggest that this should be combined with incentives for the active adoption of conservation measures (Distefano undated; Madden 2004; Woodroffe *et al* 2005). HWC mitigation between bats and development in the UK is largely through legislative regulation, with little enforcement but no positive incentives are available for those who accommodate bats.

With little effort spent on investigation or prosecution of bat crimes, and paltry fines for those prosecuted, often less than the cost of an appropriate bat survey, where is the incentive for any developer to play within the rules? Watson (2005) claims that fines for environmental crimes are too low, and considers increased use of civil or administrative penalties. A review of wildlife crime in Scotland (Scottish Government 2008d) made recommendations to address systematic failures which reduced the effectiveness of policing and prosecution. Of the 44 convictions in 56 cases prosecuted, 10 had no financial or custodial penalty and the average fine for the remaining 34 cases was £488 (cf. an average fine of £304 for all Sherriff Court cases). The BCT bat crime officer reported that "development works continue as the major cause of reported bat crime" (BCT 2008e). Many reported bat crimes are not prosecuted (NWCU 2009a) but bat persecution remains a high priority for police forces (NCWU 2009b).

Crampton (2009) discusses the positive role of wildlife crime prosecutions in achieving voluntary compliance by individuals within society, such as developers, who may gain from breaching legal requirements (e.g. as an expedient to avoiding delays). Prosecution has an educative effect on all parties. Reports for SNH have consistently recommended stronger enforcement of these obligations (Heriot-Watt 2007; ERM 2004). There is also a lack of enforcement of planning conditions by LPA Enforcement Staff and Planning Officers, maybe partly due to staff shortages, and also perhaps to the knowledge that without support from their management and councillors, and from the police prosecution is highly unlikely. In

Scotland, additional enforcement powers were provided for LPAs, to ensure that enforcement action is appropriate, speedy and effective (Scottish Government 2008a).

Even where bats are identified as material, development management planners may proceed rapidly to consent under social, political and economic pressures, perhaps with insufficient time for adequate bat surveys or little scrutiny of survey quality or mitigation proposals (BCT/BMT Cordah 2005). Effective support from champions would alleviate these pressures, while there remains little scope for developing incentives.

### 6.3.7 Research

Basic research is needed to support the maintenance and enhancement of protected species (and habitats), addressing key issues such as the size and dynamics of bat populations, the effects of loss of roosts, the cumulative impacts of anthropogenic mortality, and the effects of widespread habitat fragmentation (e.g. Racey 2003; Jones *et al* 2009b; Weller *et al* 2009) and existing practice in screening, survey and mitigation would benefit from objective and systematic reviews of the evidence-base (Pullin *et al* 2004; Sutherland *et al* 2004; Pullin & Stewart 2006; Roberts *et al* 2006). The topics below are particularly significant to bats and development.

#### Mitigation Monitoring

Identified as a significant gap in knowledge (BCT/BMT Cordah 2005; BCT 2008d; personal observations; Ben Ross personal communication), this will continue to be a gap, as very few derogation licences under the habitats directive have significant monitoring requirements, at least in Scotland. Although most such licences affect the commoner species such as common and soprano pipistrelle, this lack undermines the value of all mitigation as there is no proof of success; it is thus difficult to logically argue that these mitigation works can sustain the favourable conservation status of bats. It has been suggested by some developers that as monitor will not be required, and there is no guarantee of success, then the mitigation is a futile waste of their resources.

#### Mitigation Banking

Latimer and Hill (2008) suggest that not all impacts can be addressed by on-site small-scale habitat retention or manipulation, and that greater use be made of off-site mitigation. The concept of “mitigation banking” or “biodiversity offset” has been gaining ground in USA, where it offers significant gains in landscape-scale conservation, with spin-off gains for non-protected species and habitats (Latimer and Hill 2008). The longer time-scales involved also create a mechanism to deliver habitat creation, enhancement and restoration schemes that are otherwise piecemeal and ill-funded (Latimer and Hill 2008), and this could benefit bats through planned networks of habitat, new large hibernacula, swarming sites and roosts.

Landscape-scale habitat enhancements have been suggested as a potentially more cost-effective approach to maintaining FCS and mitigating for development impacts (L. Hatton personal communication). However, a review by Morris *et al* (2006) found that habitat creation may suit highly dynamic environments which develop rapidly, in years rather than decades, and they recommend that only where all reasonably practicable alternatives have been explored and rejected should mitigation banking be considered. Nonetheless, mitigation banking could offer compensation for the incremental cumulative impacts discussed in Section 1.4.4, and the practicalities are under consideration by the UK government (Trewick 2009).

### Conservation at the Landscape-scale and Population-scale

Effective conservation of bats requires a landscape-scale approach (Hutson *et al* 2001; Racey and Entwistle 2003). The policy and legislative drivers of the ‘biodiversity’ and ‘sustainability’ processes are leading to a shift in focus from site-based impacts and mitigation to the maintenance or re-establishment of viable ecosystem networks (Catchpole 2006). Consider impacts within local ecological networks (Latimer 2009) – the principles of Appropriate Assessment process could be applied to select species / habitats (e.g. BAP species) resulting in a more holistic networked approach (Latimer 2009). Realisation of such habitat networks is still largely aspirational, their creation limited by lack of suitable basic ecological data and lack of empirical validation (Crist *et al* 2000; Gontier *et al* 2006). Successful examples include the “Landscapes for Lessers” project in Wales (Mapstone 2009), and the Greater Horseshoe Bat Project (Longley 2003) which both focus on actions for single Annex IV species but will also benefit other bat species. For most bat species there is only poor understanding of the habitat requirement to support a colony (BCT/BMT Cordah 2005). However, the range of these projects fails to reach most of the UK so more such effort is required in support of Annex II species.

UK Government indicators for habitat connectivity, priority habitats, has no assessment as there are insufficient data (Defra 2009), and plant diversity is deteriorating in two of three categories suggesting continuing degradation of available bat habitats.

### Understanding How Bats Use Buildings

As the current understanding of where bats roost in buildings is based upon observations of intact properties, where the actual roost cavity is often unseen and can only be inferred, it is very instructive to undertake inspection for bats during careful hand demolition (personal observations). Such investigations were recommended by CCW (BCT/BMT Cordah 2005) for buildings scheduled for demolition, gathering details of roost space locations, dimensions and characteristics that may illuminate future screening assessments.

### Use of Non-Maternity Roosts

Guidance and survey have tended to concentrate on maternity roosts, but this undervalues the many roosts used in more transient manner. Many species habitually change roost frequently, or use transient roost sites including night roosts, and these roosts are thus less likely to be discovered by surveys. Multiple survey in different seasons may be necessary (Ferrera and Leberg 2005; Weller *et al* 2009; personal observations). Guidance and assessment of surveys should consider the variability of site occupation by bats, and the range of roosts used by the population throughout the year. Autecological studies should address what defines a local population of bats; and investigate the entire roost requirements of meta-populations, to better understand population level conservation needs (Agosta 2002; Weller *et al* 2009).

### Proposed Screening method

In Figure 6.2 I presented a draft flowchart screening process. I plan to continue to develop this concept in concert with the BCT/ALGE criteria. In addition, the Delphi process offers an iterative consensus-based approach, which could develop such a screening process further through the combined experiences of stakeholders in this field (MacMillan and Marshall 2009). Where ecological data are scarce, modelling is often used to support decision-making, by predicting outcomes. The Delphi approach mainly developed by Dalkey and Helmer (1963) has been used in development and application of tools for wildlife

conservation and management (e.g. Hess and King 2002; Austen and Hanson 2008). This iterative method seeks to balance individual views and develop a consensus between experts. The protocol should be trialled in LPAs, with BACI testing to assess efficiency of the screening process and of associated awareness training.

#### Effects on a colony of loss of a roost

The impacts upon roost use, colony cohesion and foraging patterns should be investigated using lightweight radio-tags, working at domestic and development sites where exclusion has already been consented under Habitats regulations license.

#### Longitudinal study of survey efficacy

A range of sites and structures should be surveyed repeatedly over an extended period, and with a variety of techniques, to demonstrate the relationship between apparent signs of bats and roosts and the actual occupancy of the structures including cryptic roosts. This would support the establishment of cost effective and appropriate survey methods.

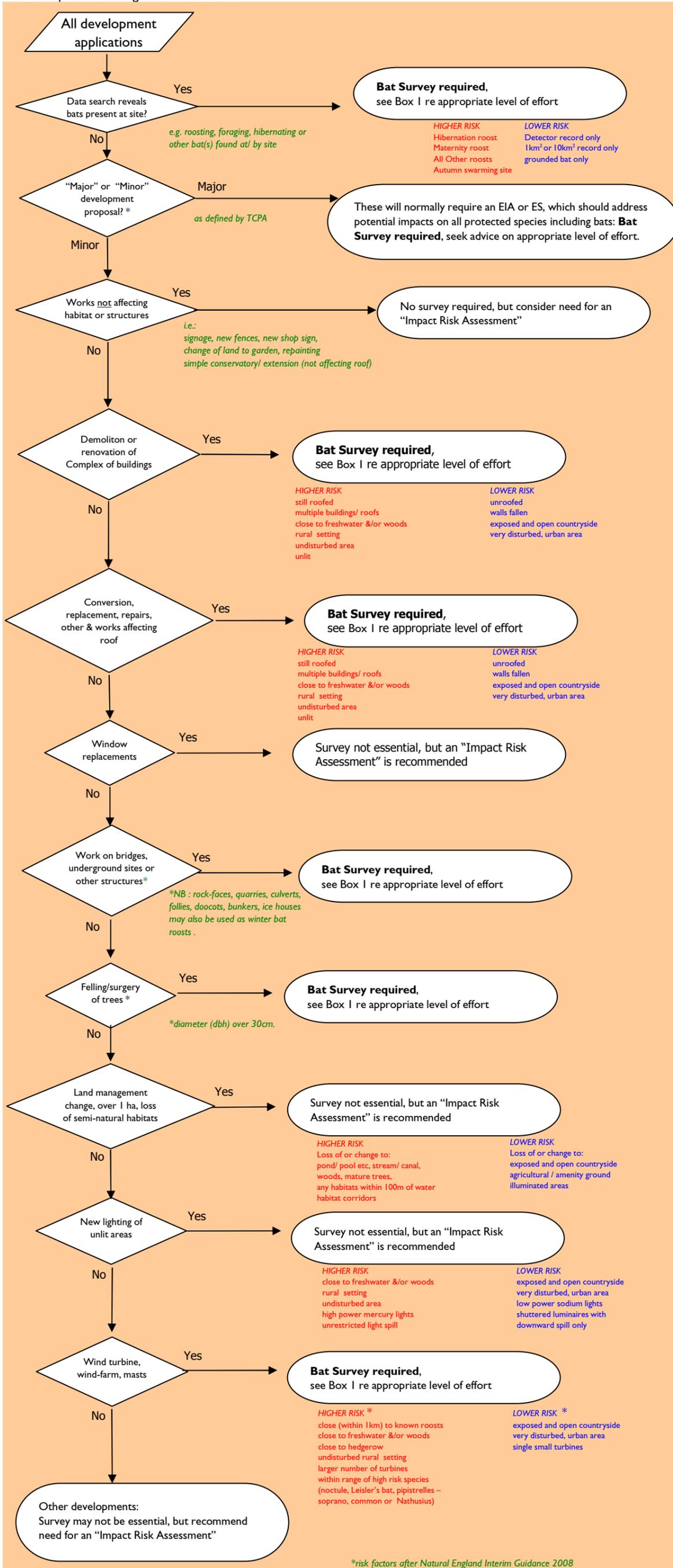
## 6.4 Towards better screening: a draft protocol for bats

Conservation biology is a multi-disciplinary science (Soule 1985) and this is reflected in the principles discussed in Sections 6.2 and 6.2 and the attempts that I have made to draft an example screening process for bats. I drew my thoughts about the screening process from my professional experiences: screening planning application lists; responding for Fife and Kinross Bat Group to consultations from Fife Council planning staff; advising developers and undertaking consultancy bat surveys; providing training on EPS for planning staff. In the mid 1990s there was little will amongst development control staff in LPAs or developers to consider the potential impacts on bats, originating in a lack of knowledge of the LPA's legal obligations regarding bats as EPS, and in the conviction that it was not actually their job but someone else's (i.e. an SEP, or "Someone Else's Problem"<sup>6</sup>). Screening for bats is now widespread, though variable in quality and often poorly applied, and some excellent tools are being developed.

In Figure 6.2 I present a draft flowchart structure for a screening process, drawn from combining my own experience and observations with the guidance and experiences gathered for this study.

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<sup>6</sup> Someone Else's Problem (SEP) is an effect that causes people to ignore matters which are generally important to a group but may not seem specifically important to the individual. Douglas Adams (1982) *Life, the Universe and Everything*.



**Figure 6.2 Example layout for Screening Process Flowchart diagram.**

This chart is intended as an example of a flowchart to guide applicants or planners to deciding :

1. if bats are an issue?
2. what level of effort might be appropriate?

i.e. "these kinds of development works can have significant negative impacts on bat roosts and populations" - seek professional advice/ report.

**CASE STUDY EXAMPLE 1**

"Single storey extension to rear and two storey extension to side of dwellinghouse", a domestic application which shows on the plans that the two storey extension will tie into the existing roof, and the footprint is laid to grass.

This local application, with no previous record of bats, not affecting semi-natural habitats, and requiring no demolition does involve works affecting the roof – despite this not being mentioned in the application title, thus a Bat Survey is Required.

The level of potential risk is decided from factors such as surrounding land use / habitat, age and complexity of buildings, and whether the proposed works will affect parts that may be used by bats.

**CASE STUDY EXAMPLE 2**

"Change of use, alter and extend agricultural buildings to form two dwellinghouses"

This local application, affecting an old complex of buildings, may affect some semi-natural habitats, is likely to require some demolition, and will involve works affecting the roof, thus a Bat Survey is Required.

The level of potential risk is decided from factors such as surrounding land use / habitat, age and complexity of buildings, and whether the proposed works will affect parts that may be used by bats.

**Box 1: Bat Surveys -**

**Potential Risk to Bats, and Level of Survey Effort:**

Methods should be guided by the Natural England Bat Mitigation Guidelines and the BCT Good Practice Surveys Guide.

**HIGH**

Methods should be developed by the consultant ecologist and may need consultation with SNCO area officer or county ecologist. Desk study, a minimum of two dawn and dusk visits (or equivalent) during the key periods (depends on site), made by experienced licenced batworkers, including full inspection using torches and endoscope, may need access equipment, bat call recording and analysis (Heterodyne is not good enough), detailed report presenting annotated plans of site, and of bat records, assessment of results, & full field data, copy of bat records (to be submitted to local records centre/ county ecologist/ SNCO office).

**MEDIUM**

Desk study, a minimum of two dawn or dusk visits (or equivalent) during the key periods (as above), made by experienced licenced batworkers, including full inspection using torches and endoscope, call recording and analysis (Heterodyne is not good enough), detailed report presenting annotated plans of site, and of bat records, assessment of results, & full field data, copy of bat records (to be submitted to local records centre/ county ecologist/ SNCO office).

**LOW**

Desk study, Brief inspection, or Bat Risk Assessment, by experienced licenced batworker, detailed report presenting annotated plans of site, and of bat records, assessment of results, copy of bat records (to be submitted to local records centre/ county ecologist/ SNCO office).

**CONTACTS FOR FURTHER ADVICE:**

- local authority ecologist: 000 0000 00000
- SNCO office 000 0000 00000
- local bat group 000 0000 00000
- IEEM 000 0000 00000

## 6.5 Limitations of this study

Respondents were self-selected to be interested, as the survey was voluntary, and so the results inherently biased towards those already interested in natural heritage, protected species, or improving performance standards. The results therefore probably show a rosier picture than might be derived from studying the average development control planner.

The original aims of the project included following a sample of planning applications through submission to consent, and independently surveying the site for bats, but this proved impossible; if LPA did not require a bat survey from the applicant, but the independent surveys discovered bats an unacceptable conflict of interest and confidentiality would arise. Thus for the samples planning applications the presence of bats could only be guessed at from the available information.

## 6.6 Conclusions

I have drawn the following conclusions and recommendations. As an example of HWC, the conflict over bats between conservation and development demonstrates how often there is no single simple intervention to achieve resolution. Although a strong legal framework exists to protect and conserve bats and their roosts, the development management process shows a failure of delivery, both on an individual scale and on a cumulative scale.

### Bat Populations Still Threatened

Despite some signs of recovery, bat populations are still threatened daily by development and risk potentially significant negative impacts. LPA staff show good awareness of bats' legal protection and yet developers must spend many tens of thousands of pounds annually on surveys which appear to fall short of securing the aims of the legislation and policy for bat conservation. Perhaps it is timely to adopt a strategy of developing habitat networks.

The screening process in LPAs is flawed in both intent and implementation. Legislation and guidance make the obligations clear only for certain developments, focus on the most vulnerable species and roosts, and take scant consideration of cumulative impacts on habitat or roosts. Demolition works are poorly screened for potential impacts upon protected species such as bats. Modern buildings favoured by pipistrelles are often 'devalued' by guidelines. Comparison of site features and proposed activities for one LPA showed that although 22% of applications had high risk of potential for harm to bats, typically only 1-3% of applications were required to include a bat survey, comparable to other UK studies.

### Achieving Comprehensive Adoption

Despite the challenges there are high levels of adoption of some form of biodiversity screening process across LPAs. Improving guidance and tools, wider awareness of the obligation, and training have all increased adoption, but it has been suggested that there is a lack of support from managers and elected officers. Clear high level political support, ideally with champions working at all levels of the process and from all sectors, is a key part of HWC interventions, to ensure adoption of screening.

Standardised application forms raise the opportunity to ensure biodiversity is considered for all applications in the UK, not just England and Wales, with national requirements setting the basic standard, enhanced through local requirements. A declaration should be required as part of validation for all applications that potential for impacts on bats have been considered. Bats and biodiversity should be addressed with robust policies in local and strategic plans.

### Lack of Enforcement

Until bats are 'revalued' as Gillespie & Rasey (2003) put it then developers will be tempted to ignore them whenever they can. Despite bat crime being a police priority, cases are seldom prosecuted and the penalties are inadequate as deterrents. LPA development management staff, whose responsibility it is to determine if significant impacts on bats are likely, have as yet faced few prosecutions for failing to give due regard to potential impacts upon bats.

### Bats are Everywhere

Bats forage and roost across almost all terrains in the UK, the features they use commonplace enough that other factors such as location and surrounding habitat must also be used in screening: bats should be considered for almost every development.

The premise that bats are to be expected everywhere, and may roost in almost any structure should be adopted *a priori*, and screening, assessment and mitigation be used to determine how the risk can be reduced to acceptable levels.

#### Improved Guidance

Guidance is improving, notably the BCT Bat Surveys Good Practice Guidelines, the VWT Lesser Horseshoe Handbook, and the Natural England Standing Advice webpages. However, there is a strong desire for more consistency of advice and practice, and for clearer scenario-based advice based on sound science. Guidance currently largely focuses on simplistic reductions of bats' needs; site features, surrounding habitat and details of proposed works should all be considered when assessing the potential risk of impacts. Gaps and inconsistencies in advice and protocols, such as for demolition or wind turbines, require attention. Care should be taken in content and design criteria to enhance specificity and sensitivity. Development of the online Biodiversity Toolkit on the Planning Portal offers potential as a clearing house for guidance, ensuring ease of access.

Unification of planning and non-planning consent systems as recommended by Penfold would simplify guidance.

#### Assessing Roost Significance

Knowledge gaps and weak process design result in considerable limitations to the assignment of significance in impact assessment (Wood 2008)<sup>7</sup>. There is no published guidance on valuing roosts of most species, thus assessment remains very subjective. The emphasis on maternity roosts may undervalue the range of roosts and habitat relevant to population conservation. The cumulative impact of losing these individually less significant roosts could have population-scale effects. The significance of apparently disused roosts is an area requiring clarification given the strong philopatry shown by UK bat species.

#### Access to Bat Data

The data generated from the many bat surveys undertaken each year should be collated by LPAs, to facilitate improved screening and habitat network conservation. Development of a comprehensive network of local biological records centres across the UK should be a priority. Licensed bat workers should be required through their licenses to submit details of bat roosts and observations to the SNCO (or an agent such as a BRC).

#### Natural Heritage Skills Gap

The structural features used by roosting bats are commonplace in our built environment, making it difficult to simply identify potential roosts, consequently specialist natural heritage skills are required to properly assess the risk and required action. Although there is widespread access and utilisation of expert natural heritage skills in LPAs, they require further training and access to specialist natural heritage staff as SNCOs reduce their involvement in development management.

#### Cumulative Monitoring and Assessment

Impacts upon bats are poorly quantified and monitored although attention has now begun to focus on assessing potential impacts at a wider scale, such as habitat fragmentation or

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<sup>7</sup> This question has been addressed in an article just published in the IEEM journal, *In Practice*, too late to be included in my analysis: Wray, S., Wells, D., Long, E., Mitchell-Jones, T.M. (2010) Valuing Bats in Ecological Impact Assessment. *IEEM In Practice*, 70: 23-25.

mortality at wind turbines. As bat populations are vulnerable to small increases in annual mortality the need for better understanding of cumulative population impacts is acute.

Bats as “surrogates” indicating a wider biodiversity health do not show great benefit from the local development management process. It is doubtful whether any other species gains associated benefits from this process, even swifts which are also dependent upon cavity breeding sites in buildings.

#### Research

Many aspects of basic bat ecology still remain poorly understood, such as population sizes and structure. More attention could be given to such research which has applications in conservation biology through such areas as development management.

Some buildings are readily identifiable as higher risk, but roost choice is subtle and research should investigate known roost sites to identify the combinations of structural and habitat factors, to guide screening triggers to achieve reasonable success rates.

It would be interesting to compare the level of effort spent in applying obligations regarding biodiversity with other aspects of development management, such as obligations for Water quality, Building Regulations, built heritage, hazardous substances (Seveso II Directive, Directive 96/82/EC on the control of major accident hazards), air quality, etc.

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## Appendix I

### Latin Names of Species mentioned in the text

species	common name
<i>Apus apus</i>	swift
<i>Barbastellus barbastella</i>	barbastelle
<i>Eptesicus fuscus</i>	big brown bat
<i>Eptesicus serotinus</i>	serotine
<i>Gadus morhua</i>	north Atlantic cod
<i>Lycaon pictus</i>	African wild dog
<i>Myotis brandtii</i>	Brandt's bat
<i>Myotis daubentonii</i>	Daubenton's bat
<i>Myotis mystacinus</i>	whiskered bat
<i>Myotis nattereri</i>	Natterer's bat
<i>Nyctalus leisleri</i>	Leisler's bat
<i>Nyctalus noctula</i>	noctule
<i>Odocoileus virginianus</i>	white-tailed deer
<i>Panthera tigris</i>	tiger
<i>Pinguinus impennis</i>	great auk
<i>Pipistrellus nathusii</i>	Nathusius' pipistrelle
<i>Pipistrellus pipistrellus</i>	common pipistrelle
<i>Pipistrellus pygmaeus</i>	soprano pipistrelle
<i>Plecotus auritus</i>	brown long-eared bat
<i>Plecotus austriacus</i>	grey long-eared bat
<i>Raphus cucullatus</i>	dodo
<i>Rhinolophus ferrumequinum</i>	greater horseshoe bat
<i>Rhinolophus hipposideros</i>	lesser horseshoe bat
<i>Triturus cristatus</i>	great crested newt

## Appendix 2

### Abbreviations Used

1APP	The 1App single standard application form, in England and Wales
ALGE	Association of Local Government Ecologists
BACI	Before-After/Control-Impact Studies
BAP	Biodiversity Action Plan
BCT	The Bat Conservation Trust
BMG	The Bat Mitigation Guidelines
BRC	Biological records centre
CBD	Convention on Biological Diversity
CCW	Countryside Council for Wales
CEA	Cumulative Effects Assessment
CIA	Cumulative Impact Assessment
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CPD	Continuous professional development
DC	Development control
DCLG	Department of Communities and Local Government
DEFRA	The Department for Environment, Food and Rural Affairs
ECJ	European Court of Justice
EIA	Environmental Impact Statement
EN	English Nature
EPS	European protected species
ES	Environmental Statement
FKBG	Fife and Kinross Bat Group
FSC	Favourable conservation status
GBGP / GBG	Gwent Bat Group protocol / Gwent Bat Group
GIS	Geographic information system
HSE	The Health and Safety Executive
HWC	Human-wildlife conflict
IEEM	Institute of Ecologists and Environmental Managers
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
LPA	Local planning authority
NBN	National Biodiversity Network
NE	Natural England
NGO	Non-governmental organisation
NIEA	Northern Ireland Environment Agency
NPA	National park authority
NPFS	National Planning Framework for Scotland
NPPG	National Planning Policy Guideline
ODPM	Office of the Deputy Prime Minister
PA	Planning application
PAN	Planning advice note
RTPI	Royal Town Planning Institute
SAC	Special area of conservation (under Habitats Directive Article III)
SEA	Strategic Environmental Assessment
SNCO	Statutory nature conservation organisation
SNH	Scottish Natural Heritage
SPA	Special protection area
SPP	Scottish Planning Policy
SSSI	Site of Special Scientific Interest
TCPA	Town and Country Planning Act
WAG	Welsh Assembly Government
WCA	Wildlife and Countryside Act 1981
WCED	World Commission on Environment and Development

**Appendix 3****Questionnaires**

<b>LPA questionnaire</b>	<b>138</b>
<b>Bat Consultants' questionnaire</b>	<b>147</b>

## LPA Bat Screening Process 300309

### Default Section

Thank you for responding to this survey request.

The questionnaire is intended for those Local Planning Authority (LPA) staff (planners, ecologists or others) who screen the received planning (etc) applications for natural heritage issues. It seeks information about the way that potential issues relating to bats and bat roosts are identified within the planning system.

IF your job does NOT involve consideration of planning applications for natural heritage issues, then please pass this survey invitation on to a relevant colleague.

The data will be used as part of a Masters project investigating bats and the planning system, undertaken by Keith Cohen at the School of Biology, University of St Andrews. The aim is to provide mechanisms or tools to support the efficient screening of planning applications for bats.

Unless you choose to identify yourself, all responses will be anonymous, and treated with confidentiality.

There are 20 questions and it takes about 20 minutes to complete.

The survey will close at the end of April 2009.

#### 1. are you employed as a (please tick one):

- biodiversity officer  
 planning officer  
 ecologist  
 Other (please specify)

#### 2. is your team located within the planning department (development control section)?

- yes  
 no

Please give details

#### 3. are you in the same management / reporting structure as the (development management) planners?

- yes  
 no  
 Other (please specify)

## LPA Bat Screening Process 300309

## 4. who in your LPA is responsible for screening each (received) application for existing bat records?

(please tick one)

- applicant / agent  
 planning case officer  
 council ecologist  
 biodiversity officer  
 local records centre  
 SNCO case officer  
 local bat group  
 no specified person  
 Other (please specify)

## 5. what percentage of planning applications are screened for possible bat issues?

	None	1-25%	26-50%	51-75%	76-99%	All
full planning application	<input type="radio"/>					
listed building consent	<input type="radio"/>					
outline application	<input type="radio"/>					
demolition warrant	<input type="radio"/>					
agricultural prior notice	<input type="radio"/>					
reserved matters	<input type="radio"/>					
conservation area consent	<input type="radio"/>					
advertising	<input type="radio"/>					

Other (please specify)

**LPA Bat Screening Process 300309**

**6. does your LPA produce specialist advice (e.g. a leaflet, booklet or such) available for developers/ applicants/ consultants, relating to natural heritage:**

**(please tick all that apply)**

- no
- yes, for bats
- yes, for European Protected Species (EPS)
- yes, for all biodiversity
- yes, other
- Other (please specify)

**7. is your specialist advice re natural heritage publicly available?**

**(please tick all that apply)**

- no
- yes, printed copies are available
- yes, it can be downloaded from the internet
- yes, it can be read online
- yes, it is included in the standard applicants' guidance notes
- Other (please specify)

**8. what guidance relating to bats is offered / provided to prospective applicants prior to a planning application being submitted?**

**9. does your LPA have an (internal) guidance note to inform planning officers about bats and how to screen applications for issues with bats?**

- yes
- no
- don't know

comments

### LPA Bat Screening Process 300309

10. is your LPA bat screening process publicly available?

- no
- yes, printed copies are available
- yes, it can be downloaded from the internet
- yes, it can be read online
- yes, it is included in the standard applicants' guidance notes

11. what happens relating to bats when a planning application is received?

12. what happens relating to bats when an application is validated?

13. does your process to screen for potential bat issues include use of the following:

(please tick one per row)

	no	always	sometimes
checklist of features	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
flowchart of advice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
site photographs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
search of existing data/ records	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
expert bat ecologist opinion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
opinion of case planning officer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input style="width: 100%;" type="text"/>		

**LPA Bat Screening Process 300309**

**14. which of these possible development proposal ACTIVITIES would indicate need for a bat survey?**

**(please rate each between 'not at all' and 'definitely')**

	not at all	not likely	possibly(50:50)	probably	definitely
site clearance	<input type="radio"/>				
tree surgery	<input type="radio"/>				
pond drainage	<input type="radio"/>				
tree felling	<input type="radio"/>				
hedge removal	<input type="radio"/>				
mineral extraction	<input type="radio"/>				
new street/ exterior lighting	<input type="radio"/>				
erection of new building	<input type="radio"/>				
internal alterations	<input type="radio"/>				
large wind turbines	<input type="radio"/>				
mini or micro wind turbine	<input type="radio"/>				
repainting	<input type="radio"/>				
conversion of garage	<input type="radio"/>				
renovation/ repairs of concrete bridge	<input type="radio"/>				
renovation/ repairs of stone bridge	<input type="radio"/>				
conversion of stables/ steadings	<input type="radio"/>				
renovation/ repairs of historic building/structure	<input type="radio"/>				
demolition	<input type="radio"/>				
renovation/ repairs of farm steadings	<input type="radio"/>				
roof conversion	<input type="radio"/>				
side extension	<input type="radio"/>				
dormer conversion	<input type="radio"/>				
window replacement	<input type="radio"/>				
extension tied into roof	<input type="radio"/>				
re-roofing	<input type="radio"/>				
roof repairs	<input type="radio"/>				
conservatory extension	<input type="radio"/>				
Comment	<input type="text"/>				

**LPA Bat Screening Process 300309**

**15. which of these possible development site FEATURES would indicate need for a bat survey?**

(please rate each between 'not at all' and 'definitely')

	not at all	not likely	possibly(50:50)	probably	definitely
woodland, conifer	<input type="radio"/>				
woodland, deciduous	<input type="radio"/>				
mature trees	<input type="radio"/>				
pond, lake, reservoir	<input type="radio"/>				
farm steadings	<input type="radio"/>				
roofless buildings	<input type="radio"/>				
hedges	<input type="radio"/>				
bridge	<input type="radio"/>				
historic building/structure	<input type="radio"/>				
underground tunnel, cave, culvert etc	<input type="radio"/>				
house, pre 1900	<input type="radio"/>				
house, 1900 - 1950	<input type="radio"/>				
house 1950 - 1970	<input type="radio"/>				
house, post 1970	<input type="radio"/>				
canal	<input type="radio"/>				
street-lighting	<input type="radio"/>				
river	<input type="radio"/>				
moorland	<input type="radio"/>				
rural location	<input type="radio"/>				
urban location	<input type="radio"/>				
sub-urban location	<input type="radio"/>				
disused buildnig	<input type="radio"/>				
shed/ outhouse/ garage	<input type="radio"/>				

Comment

---

**16. are either the applicant or the planner required to confirm the consideration of possible presence of / impact on bats?**

(please tick all that apply)

no

yes, applicant signs a declaration

yes, planner uses validation checklist

yes, but planner does not use written criteria

Other (please specify)

**LPA Bat Screening Process 300309**

**17. when need for a bat survey is triggered, are any of the following provided to the applicant?**

**(please tick all that apply)**

- an 'Informative' regarding bats
- advice on survey methods
- advice on survey effort required
- advice on survey timing
- advice on content of the survey report
- information that licensing may be required
- a list of known bat consultants
- none of these
- Other (please specify)

**18. where need for a bat survey is triggered, is it usually:**

**(please tick one)**

- conditioned in consent
- required prior to determination
- Other (please specify)

**19. are you aware of "the Cornwall case" (R v Cornwall County Council ex parte Hardy & Gwennap Parish Council CO/4784/99. September 2000)?**

- yes
- no

## LPA Bat Screening Process 300309

20. once a bat survey has been received, is it:

(please tick all that apply)

- reviewed by the planning case officer
- copied to the LPA ecologist for comment
- copied to the SNCO for comment
- copied to a consultant for comment
- filed on the e-planning case webpage
- always included in any Committee Report
- any mitigation requirements are conditioned
- none of these
- Other (please specify)

21. do you believe that bats are a "material consideration" for these applications:

(please tick one per row)

	yes	no	not sure
full planning application	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
outline planning application	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
listed building consent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
change of use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
demolition warrant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reserved matters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
agricultural prior notice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
conservation area consent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. what additional information, guidance, or training would be helpful in making this decision process easier for you?

**LPA Bat Screening Process 300309**

23. Thank you very much for completing this survey. Your comments and information are a great help. The results will be used in helping provide ways of supporting planners or planning staff in assessing planning applications for potential bat issues.

If you have any comments on the survey, or if you would like to receive a results summary by email, please send an email message to [kc363@st-andrews.ac.uk](mailto:kc363@st-andrews.ac.uk)

Thank you very much for taking part.

Would you be willing to be contacted for further information, or to help test a draft version of new guidance? If so, please provide your details below.

Name:

Employer:

County:

Email Address:

Phone Number:

## Bat Consultants' Questionnaire 300309

### Default Section

Thank you for responding to this survey request.

This questionnaire seeks information about bat surveys undertaken by bat consultants for development proposals.

The data will be used as part of a Masters project investigating bats and the planning system, undertaken by Keith Cohen at the School of Biology, University of St Andrews. The aim is to provide mechanisms or tools to support the efficient screening of planning applications for bats. Your help is greatly appreciated.

Unless you choose to identify yourself, all responses will be anonymous, and treated with confidentiality.

There are 15 questions and it takes about 20 minutes to complete.

The survey will close at the end of April 2009.

**1. For each of the last three years, please answer the following questions:**

**(please complete for at least one year, but all 3 years if you can!)**

	2008	2007	2006
how many development sites have you surveyed for bats	<input type="text"/>	<input type="text"/>	<input type="text"/>
how many sites had roosting bats	<input type="text"/>	<input type="text"/>	<input type="text"/>
how many sites ONLY had foraging or commuting bats	<input type="text"/>	<input type="text"/>	<input type="text"/>
how many sites had no evidence of bats at all	<input type="text"/>	<input type="text"/>	<input type="text"/>
how many sites had no visible sign of bats BUT further bat survey work later found bat roost(s)	<input type="text"/>	<input type="text"/>	<input type="text"/>
at how many sites has survey failed to show a bat roost AT ALL, but then bats were found during development works?	<input type="text"/>	<input type="text"/>	<input type="text"/>
at how many sites was bat sign visible BUT survey failed to show ACTIVE use by bats	<input type="text"/>	<input type="text"/>	<input type="text"/>

## Bat Consultants' Questionnaire 300309

2. what appeared to be the key features that made sites suitable for roosting bats?

3. what have been the most significant roosts (i.e. rarer species; or large population numbers, locally or nationally) that you have found during development surveys?

4. How many roosts of the following species were found?

	2008	2007	2006
barbastelle	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bechstein's bat	<input type="text"/>	<input type="text"/>	<input type="text"/>
Daubenton's bat	<input type="text"/>	<input type="text"/>	<input type="text"/>
horseshoe, greater	<input type="text"/>	<input type="text"/>	<input type="text"/>
horseshoe, lesser	<input type="text"/>	<input type="text"/>	<input type="text"/>
Leisler's bat	<input type="text"/>	<input type="text"/>	<input type="text"/>
long-eared bat, brown	<input type="text"/>	<input type="text"/>	<input type="text"/>
long-eared bat, grey	<input type="text"/>	<input type="text"/>	<input type="text"/>
Myotis (species not confirmed)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Natterer's bat	<input type="text"/>	<input type="text"/>	<input type="text"/>
noctule	<input type="text"/>	<input type="text"/>	<input type="text"/>
pipistrelle sp.	<input type="text"/>	<input type="text"/>	<input type="text"/>
pipistrelle, common	<input type="text"/>	<input type="text"/>	<input type="text"/>
pipistrelle, Nathusius'	<input type="text"/>	<input type="text"/>	<input type="text"/>
pipistrelle, soprano	<input type="text"/>	<input type="text"/>	<input type="text"/>
serotine	<input type="text"/>	<input type="text"/>	<input type="text"/>
species not confirmed	<input type="text"/>	<input type="text"/>	<input type="text"/>
whiskered/ Brandt's bat	<input type="text"/>	<input type="text"/>	<input type="text"/>

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5. Of the roosts found, please indicate the number in each category:

	2008	2007	2006
maternity	<input type="text"/>	<input type="text"/>	<input type="text"/>
mating	<input type="text"/>	<input type="text"/>	<input type="text"/>
hibernation	<input type="text"/>	<input type="text"/>	<input type="text"/>
transition	<input type="text"/>	<input type="text"/>	<input type="text"/>
minor	<input type="text"/>	<input type="text"/>	<input type="text"/>
major	<input type="text"/>	<input type="text"/>	<input type="text"/>

6. which of these possible development site FEATURES have you found TO HAVE bat roosts?

(tick all that apply):

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> bridge                     | <input type="checkbox"/> house, 1950 - 1970     | <input type="checkbox"/> trees, mature (>15cm dbh) |
| <input type="checkbox"/> concrete bridge            | <input type="checkbox"/> house, ice             | <input type="checkbox"/> trees, veteran            |
| <input type="checkbox"/> disused bridge             | <input type="checkbox"/> house, post 1970       | <input type="checkbox"/> trees, young (<15cm dbh)  |
| <input type="checkbox"/> dovecot                    | <input type="checkbox"/> house, pre 1900        | <input type="checkbox"/> tunnel                    |
| <input type="checkbox"/> farm out-building          | <input type="checkbox"/> lime kiln              | <input type="checkbox"/> underground culvert       |
| <input type="checkbox"/> farm steading              | <input type="checkbox"/> old mine               | <input type="checkbox"/> underground site          |
| <input type="checkbox"/> farm steadings/ quadrangle | <input type="checkbox"/> shed/ outhouse/ garage | <input type="checkbox"/> woods, conifer            |
| <input type="checkbox"/> historic building          | <input type="checkbox"/> stables                | <input type="checkbox"/> woods, deciduous          |
| <input type="checkbox"/> house, 1900 - 1950         | <input type="checkbox"/> stone bridge           |  |
| <input type="checkbox"/> Other (please specify)     |   |  |

7. which of these possible development site BUILDING FEATURES have you found TO BE ASSOCIATED WITH presence of bat roosts ?

(tick all that apply)

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> barge board                 | <input type="checkbox"/> lapped metal sheet roofing | <input type="checkbox"/> stone walls         |
| <input type="checkbox"/> bitumen roofing             | <input type="checkbox"/> loft insulation            | <input type="checkbox"/> thatching           |
| <input type="checkbox"/> brick walls                 | <input type="checkbox"/> pantiles                   | <input type="checkbox"/> tiled roofing       |
| <input type="checkbox"/> cavity wall                 | <input type="checkbox"/> ridge tiles                | <input type="checkbox"/> tiled walls         |
| <input type="checkbox"/> cement block walling        | <input type="checkbox"/> slate roofing              | <input type="checkbox"/> wood-clad walls     |
| <input type="checkbox"/> corrugated asbestos roofing | <input type="checkbox"/> soffit box                 | <input type="checkbox"/> wooden roof trusses |
| <input type="checkbox"/> corrugated metal roofing    | <input type="checkbox"/> stone roofing              |  |
| <input type="checkbox"/> Other (please specify)      |   |  |

## Bat Consultants' Questionnaire 300309

**8. which of these possible development site HABITAT FEATURES have you found TO BE ASSOCIATED WITH presence of bat roosts ?**

**(tick all that apply)**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> canal            | <input type="checkbox"/> moor, upland    | <input type="checkbox"/> species-rich grassland |
| <input type="checkbox"/> ditch            | <input type="checkbox"/> parkland        | <input type="checkbox"/> street-lighting        |
| <input type="checkbox"/> hedge            | <input type="checkbox"/> parkland, urban | <input type="checkbox"/> sub-urban location     |
| <input type="checkbox"/> hedge, tall,     | <input type="checkbox"/> pond            | <input type="checkbox"/> urban location         |
| <input type="checkbox"/> improved pasture | <input type="checkbox"/> reservoir       | <input type="checkbox"/> woodland, coniferous   |
| <input type="checkbox"/> lake             | <input type="checkbox"/> river           | <input type="checkbox"/> woodland, deciduous    |
| <input type="checkbox"/> marshland        | <input type="checkbox"/> rural location  |   |
| <input type="checkbox"/> moor, lowland    | <input type="checkbox"/> scrub           |   |

Other (please specify)

**9. How many times (in 2006, 2007, 2008) have you been asked to undertake a survey AFTER bats have been found on a development site?**

2008	<input type="text"/>
2007	<input type="text"/>
2006	<input type="text"/>

**10. Do you feel that you have adequate access to existing local bat records?**

Yes

No

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### 11. how satisfied are you with the available guidance on bat surveys?

	unsatisfied	not very satisfied	OK	satisfactory	excellent
English Nature Bat Mitigation Guidelines 2004	<input type="radio"/>				
EN Supplementary Guidance (north-east) 2004	<input type="radio"/>				
BCT Bat Survey Good Practice Guide 2007	<input type="radio"/>				
BCT bats and Planning leaflet	<input type="radio"/>				
EN Bats and Barn Owls leaflet	<input type="radio"/>				
Natural England webpage	<input type="radio"/>				
BCT website	<input type="radio"/>				

Comment

### 12. what information or guidance would you find most helpful in addition to the available guidance on bat surveys?

### 13. are clients generally willing to accept the timescales and costs that you need for effective bat surveys?

(please tick all that apply)

- yes
- no, object to possible time delays
- no, object to level of costs
- no, other

### 14. do you feel that planning authorities request bat surveys often enough?

- yes  no

**Bat Consultants' Questionnaire 300309**

15. do you find that recommended further survey work, conditions or mitigation that you recommend in a survey report are generally adopted by the planning authority?

yes

no

16. Thank you very much for completing this survey.

Your comments and information are a great help. The results will be used in helping provide ways of supporting planners or planning staff in assessing planning applications for potential bat issues.

If you would like to receive a summary of the results by email, please send an email message to [kc363@st-andrews.ac.uk](mailto:kc363@st-andrews.ac.uk)

Thank you very much for taking part.

Would you be willing to help test a draft version of new guidance, using your experience of real sites that you have surveyed? If so, please provide your details below.

Name:

Employer:

preferred contact

method:

Email Address:

Phone Number:

## Appendix 4

### A Sample of Documents, Websites and Other Guidance Relating to Bats and Development in the UK.

1. Hill, D., Fasham, M., Tucker, G., Shewry, M. & Shaw, P. (2005) Handbook of Biodiversity. Methods Survey Evaluation and Monitoring, Cambridge University Press.
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3. Monmouthshire Biodiversity Partnership (2005) Biodiversity and Development (Chapter C, Page 38, Species Advice Note 6: Bats), Monmouthshire Local Biodiversity Action Plan,
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12. Anon (2005d) Protected Species and Development in the Peak District National Park. Conservation and Development Practice note. Peak District National Park Authority, August 2005.
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27. Cowan, A. (2003) Trees and bats. Arboricultural Association Guidance Note 1 (Second Edition). Arboricultural Association, Hants.
28. David Tyldesley and Associates (2005, 4th Ed.) Guidance on the Environmental Impact Assessment Process. Scottish Natural Heritage.
29. Defra (2002) Working with the grain of nature: a biodiversity strategy for England.
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31. Defra (2008) Section 41: Species of Principal Importance in England
32. DoE (NI) (1997). Planning Policy Statement 2 (PPS2): Planning and Nature. Conservation. Department of the Environment Northern Ireland – June 1997.
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34. DoT, Scottish Office, Welsh Office & DoE Northern Ireland (1993) Design Manual for Roads & Bridges Volume 11 Environmental Assessment (Section 3, Part 4).
35. East Dorset D C Bat\_Protocol\_summary\_for\_public
36. Emery M (2008) Effect of Street Lighting on Bats. URBIS Lighting Ltd.
37. English Nature (2003) Nature Focus on bats.
38. English Nature (June 2005) Bats & GCN - EPS for planners - EN Sussex & Surrey Team Guidance
39. English Nature Northumbria Team (March 2004) Bat Surveys For Development Proposals In North-East England
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58. Mitchell-Jones, Carlin (2009) Bats and onshore wind turbines Interim guidance, Natural England Technical Information Note TIN051, First edition, 11 Feb 2009.
59. Mitchell-Jones, Bihari, Masing, Rodrigues (2007) Protecting & managing underground sites for bats. EUROBATS #2\_web\_rev

60. Monmouthshire County Council (2007) Bats in Buildings: The Requirements of MonmouthshireCC.
61. National Assembly for Wales (1996) Planning Guidance (Wales), Technical Advice Note (Wales) 5, Nature Conservation and Planning
62. National Assembly for Wales (2002) Planning Policy Wales, March 2002. National Assembly for Wales
63. Natural England (2008) Remedial timber treatment for bat roosts
64. Natural England – 2007 Bats, European protected species SIN010[1]
65. Natural England SE Biodiversity Checklist\_tcm6-10160
66. Natural England (2009) TIN059 - Bats and single large wind turbines, Joint Agencies interim guidance
67. Norfolk Bio Partnership (200X) Biodiversity Supplementary Planning Guidance for Norfolk
68. ODPM (2005a) Planning Policy Statement (PPS) 1: Delivering Sustainable Development. Office of the Deputy Prime Minister, HMSO.
69. ODPM (2005b) Planning Policy Statement (PPS) 9: Biodiversity and Geological Conservation. Office of the Deputy Prime Minister, HMSO.
70. ODPM (2005c) Circular 06/2005 (Defra Circular 01/2005), Biodiversity and Geological Conservation – Statutory Obligations And Their Impact Within The Planning System. HMSO.
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97. Biodiversity & Countryside Management Interest Group, [http://www.rtpi.org.uk/item/1241/pg\\_dtl\\_art\\_news/pg\\_hdr\\_art/pg\\_ftr\\_art](http://www.rtpi.org.uk/item/1241/pg_dtl_art_news/pg_hdr_art/pg_ftr_art)
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99. Scottish Government (2009) Guidance Notes for 'Application for a licence for European protected species. Version 2:1 February 2009 Species Licensing Team, Landscape and Habitats Division Scottish Government (2009) Application for a licence for European protected species, Guidance notes on providing supporting information. Version 2:1 February 2009 Species Licensing Team, Landscape and Habitats Division, Scottish Government.
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## Appendix 5

### Results of Survey Monkey questionnaire to LPA Staff

#### LPA staff experience of screening planning applications for bats

Of 83 respondents to the survey, 46 completed every question.

**1. are you employed as a (please tick one):** The majority (53%) were planning officers (Chart 1) with biodiversity and ecology officers making up a further 32%, the remainder a mix of policy, planning, ecology and biodiversity roles.

planning officer	53.0%	44
ecologist	18.1%	15
biodiversity officer	14.5%	12
Other (please specify)	14.5%	10*

**2. is your team located within the planning department (development control section)? answered 83, skipped 0 (zero)**

Yes	63.9%	53
No	36.1%	30
Please give details		18
1	I am under 'Countryside' > 'Public Protection and Environmental Services'	
2	Within the Countryside section but planning is right next door	
3	Countryside, Public Protection and Environmental Services	
4	I sit with the Highways Engineers but regularly visit the three planning department's within Powys	
5	within the planning Countryside section	
6	Countryside and Land Management	
7	REGENERATION	
8	yes but not directly within the development control we, the sustainable development team, fall within the service which house both planning, roads ourselves and some others	
9	we, the sustainable development team, are in the same service section as planning, roads and others	
10	Strategic Planning Section	
11	planning policy	
12	Conservation, Design and Landscape (within 'Planning')	
13	Development Control	
14	Ecology Group, within Environment Department	
15	Employed by Hants CC to give ecology advice to officers in Test Valley BC, New Forest DC, Havant BC & Portsmouth City Council under a Service Level Agreement	
16	Part of planning support - with enforcement and appeals	
17	Natural England	
18	DC Officer/Planning Advisor	

**3. are you in the same management / reporting structure as the (development management) planners?**

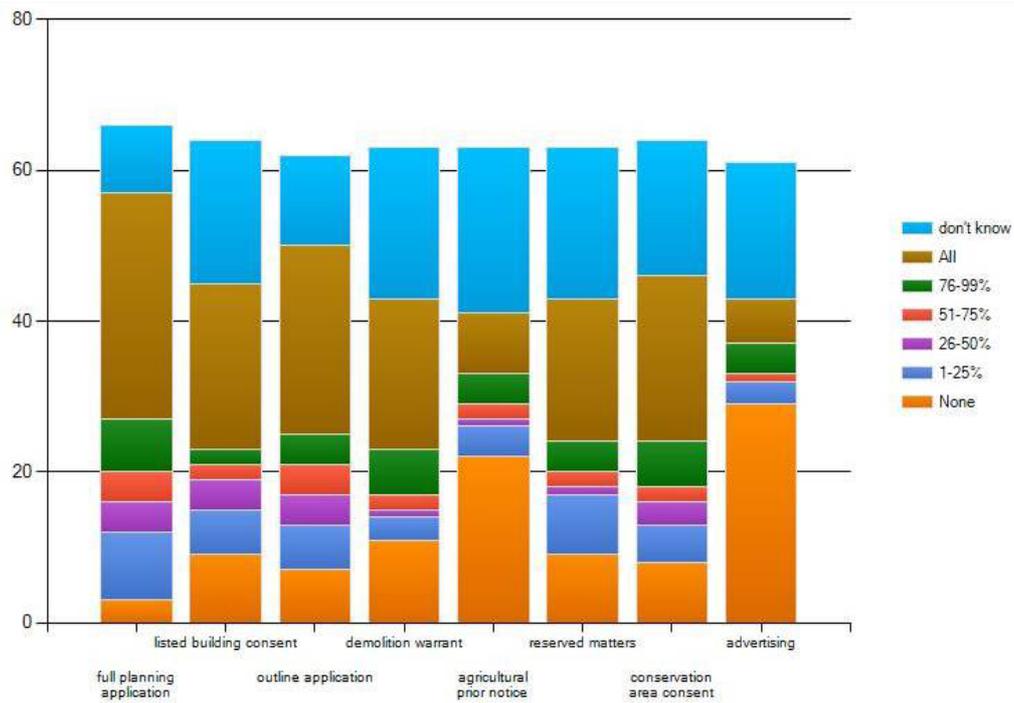
Yes	68.7%	57	
No	28.9%	24	
Other (please specify):	"See Q2"     "Not sure"	2.4%	2
	<b>answered question</b>		<b>83</b>
	<b>skipped question</b>		<b>0</b>

**4. who in your Planning Authority is responsible for screening each (received) application for existing bat records? (please tick one)” answered question 76, skipped question 7**

applicant / agent	2.6%	2
planning case officer	21.1%	16
council ecologist	18.4%	14
biodiversity officer	5.3%	4
local records centre	9.2%	7
SNCO (i.e. SNH, NE, CCW, NIEA) case officer	1.3%	1
local bat group	1.3%	1
no specified person	22.4%	17
Other (please specify)	18.4%	14
1 Both the Planning Case Officer, local records centre and and myself		
2 Trigger list used by ecologists; also, validation best practice now screens for all potential biodiversity impacts and we also use an alert service provided by the local records centre		
3 Planning applications are automatically screened using a GIS application, this flags up any potential constraints including proximity to existing bat records		
4 I work in the SNCO (CCW) - the LPA 'screens' applications		
5 LRC and Council Ecologist		
6 Very limited roost records for Borough (approx 5 roosts). I may pick up on an application for a property with a known roost, but applications are not screened for this specifically.		
7 more than one screen- see PDNPA web site+PPG9		
8 Authority does not have a specific 'bat screening' stage.		
9 Technical (Registration) Officer		
10 County biodiversity officer		
11 Wildlife Trust ecologist		
12 Planning Technician -screen against local validation criteria		
13 Applicant responsibility to submit relevant ecological information, Biodiversity information centre (LRC) screen applications, some applications referred to ecologists		
14 validation officer then the planning officer		

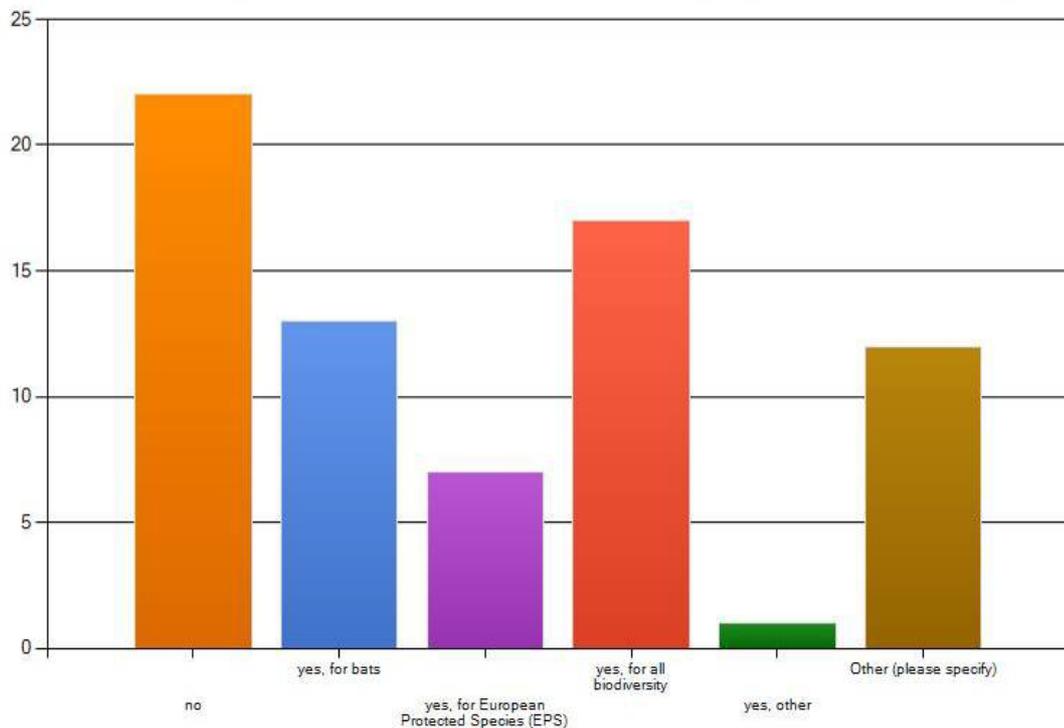
**Q5 asked “what percentage of planning applications are screened for possible bat issues?” and was intended to look at how treatment of different types of development proposals are treated between and within LPAs.**

	None	1-25%	26-50%	51-75%	76-99%	All	don't know	Response Count
full planning application	4.5% (3)	13.6% (9)	6.1% (4)	6.1% (4)	10.6% (7)	<b>45.5% (30)</b>	13.6% (9)	66
listed building consent	14.1% (9)	9.4% (6)	6.3% (4)	3.1% (2)	3.1% (2)	<b>34.4% (22)</b>	29.7% (19)	64
outline application	11.3% (7)	9.7% (6)	6.5% (4)	6.5% (4)	6.5% (4)	<b>40.3% (25)</b>	19.4% (12)	62
demolition warrant	17.5% (11)	4.8% (3)	1.6% (1)	3.2% (2)	9.5% (6)	<b>31.7% (20)</b>	<b>31.7% (20)</b>	63
agricultural prior notice	<b>34.9% (22)</b>	6.3% (4)	1.6% (1)	3.2% (2)	6.3% (4)	12.7% (8)	<b>34.9% (22)</b>	63
reserved matters	14.3% (9)	12.7% (8)	1.6% (1)	3.2% (2)	6.3% (4)	30.2% (19)	<b>31.7% (20)</b>	63
conservation area consent	12.5% (8)	7.8% (5)	4.7% (3)	3.1% (2)	9.4% (6)	<b>34.4% (22)</b>	28.1% (18)	64
advertising	<b>47.5% (29)</b>	4.9% (3)	0.0% (0)	1.6% (1)	6.6% (4)	9.8% (6)	29.5% (18)	61



- 1 I have recently joined the Council and am currently putting a lot of effort into identifying potential bat issues through training of case work officers, production of bat survey guidance note and visiting all redundant buildings both pre-and post application.
- 2 see previous answer - screening is automatic
- 3 As I am not a planner I regret that I can't answer this question
- 4 Don't know - LPA does this
- 5 Weekly Planning List is Checked
- 6 No specific bat screening takes place.
- 7 Estimate 70% for all applications

**6. does your Planning Authority produce specialist advice (e.g. a leaflet, booklet or such) available for developers/ applicants/ consultants, relating to natural heritage: (please tick all that apply)**



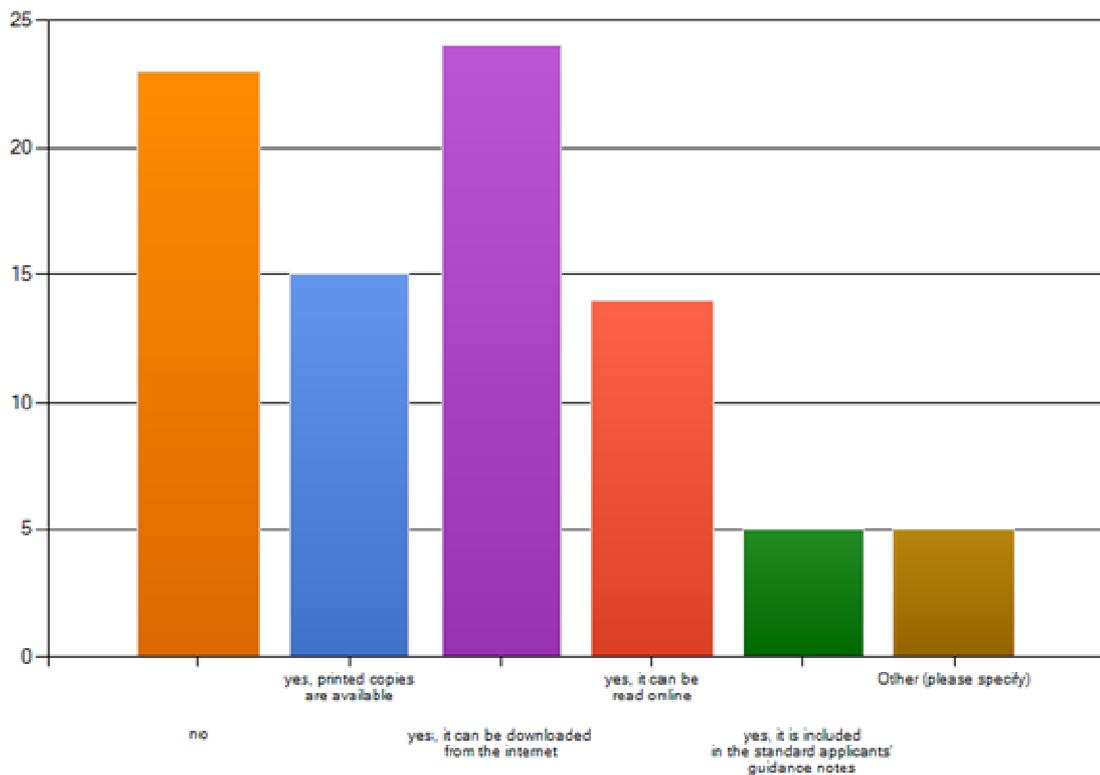
**answered question, 57    skipped question, 26**

1. Trees
2. There are policies in the development plan but no specific guidance documents
3. produced checklist for use by applicants and planning officers
4. We consult the herts Biological records centre
5. trees
6. Information regarding what would trigger the need for biodiversity surveys is included in the Tyne & Wear Local Requirements (Validation Checklist) document.
7. info on validation checklist about what required with application where natural heritage issue
8. We are in the process of developing an SPG relating to sustainable design and construction which will highlight biod and so include info on protected species such as bats
9. Planning advice note for bats, for barn owls; supplementary planning guidance for all biodiversity
10. direction to relevant websites
11. SPG is being produced for the new LDP (late 2009)
12. I am currently preparing guidance notes for EPS and other protected species including reptile sand badgers, etc.

**7. is your specialist advice re natural heritage publicly available? (please tick all that apply)**

no	40.4%	23
yes, printed copies are available	26.3%	15
yes, it can be downloaded from the internet	42.1%	24
yes, it can be read online	24.6%	14
yes, it is included in the standard applicants' guidance notes	8.8%	5
Other (please specify)	8.8%	5
	<b>answered question</b>	<b>57</b>
	<b>skipped question</b>	<b>26</b>

- 1 SPG is being produced for the new LDP (late 2009)
- 2 Unsure
- 3 Available from Herts BRC
- 4 see answer 8, below.
- 5 There is plenty of advice out there - my authority don't produce their own



## 8. what guidance relating to bats is offered / provided to prospective applicants prior to a planning application being submitted?

answered question 57, skipped question 26

- 1 Don't know
- 2 Bats legal protection status, whether there is a need for survey, and level/requirements of survey needed. Mitigation measures which may be expected.
- 3 We have a checklist that has to be submitted with all demolitions and agricultural building conversions that advises whether a full survey will be required or not.
- 4 Legal protection and status, need and requirements of survey, mitigation requirements.
- 5 A Bat and Barn Owl survey Checklist filled in by the agent. A score of 15 points triggers the need for a bat and barn owl survey.  
  
A bat survey guidance note setting out the level of survey effort required and the information required within the report, particularly relating to detailed mitigation. See Powys Planning Application Guidance Note for Bat Surveys of Buildings (available on the internet - a google search should bring it up)
- 6 Supplementary Planning Guidance and guidance documents are available on our internet also where pre-application advice is sought the applicant is advised to discuss such matters with the ecologist if the planner thinks that bats could be an issue.
- 7 Verbal advice is available to applicants pre-application. In two years working for the authority we have not had pre-app discussion with an applicant. This will be something I will now discuss with planning officers.
- 8 Range of advice, with verbal communication available
- 9 Currently the planning department does not offer pre-application advice. All advice must be filtered through the relevant planning case officer rather than through side shows between [potential] applicants and the ecologist. Would NOT be good practice for local authority ecologists to be providing unilateral advice straight to the applicants because the ecologists are not trained planners and are therefore not competent to provide definitive advice. They should only be advising the planning case officer, who must then weigh up that advice with all other considerations and obligations.
- 10 None
- 11 none
- 12 none.
- 13 pre application meetings would be the natural forum in which to raise the potential issue of bats and when it is a large application our planning colleagues will often ask us to participate it is at smaller applications that the issue can be missed. As such outline planning applications can be extremely important however not all applications will have gone to outline some / many will have been submitted as full applications straight away.  
  
Advice will relate to the need to consider that bats may either use the site for feeding and or roosting. That surveys should be undertaken - at the appropriate times by qualified person - and this would include buildings and structures.
- 14 At present the onus is on the applicant to seek out advice. We are currently developing guidance for planners, developers and the general public and bats will be incorporated into this.
- 15 It is recommended that the applicant consult the LA ecologist/CCW
- 16 CCW will offer advice via telephone regarding prospective applications - I deal with EPS, and will advise re: survey standards for bats, likely mitigation / compensation requirements, the derogation licensing process and the planning application process in general. However, due to lack of available staff time, pre-application advice may have to be reduced.
- 17 Planning ask for specific comments from the Biodiversity Officer as to whether a bat survey is required. The Bio Officer will confirm whether there are local records, and the best times of year to conduct surveys, along with confirming correct methodology. Any surveys and appropriate mitigation submitted will be checked by the Biodiversity Officer and commented on.

## 18 BATS

A surprising number of buildings and trees provide roosting sites for bats and many areas of land provide feeding ground for bats. Bats and their resting places are protected by law and can be adversely affected by development and other works to buildings.

Your application has been highlighted as one that may affect bats. This may be due to the nature of the property, which is particularly likely to support bats or because it involves changes to trees or to an area of land where bats are particularly likely to feed, roost or hibernate.

All British bats are protected under the Wildlife & Countryside Act 1981 (as amended) and have European protection under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended), which implements the EC Habitats Directive in the UK. It is an offence to deliberately capture, injure or kill a European Protected Species or to deliberately damage or destroy the breeding site or resting place (roost) of such an animal or to obstruct its access. A roost is protected whether or not bats are present at the time. 'Damage' would include operations such as timber treatment in roost areas. It is also an offence to deliberately disturb a bat that may significantly affect its ability to survive or the local distribution or abundance of that species.

#### The Requirements

The presence of protected species, such as bats, is a 'material consideration' when considering a planning application. This means the Local planning Authority has to take them fully into account when we consider your planning application. To enable to do this we need you to commission a suitable bat survey by a licensed bat surveyor and submit the survey report to us before we can make a decision on your application. Even if the presence of bats is only suspected, rather than certain, we still need you to commission a survey. The surveyor will be able to confirm whether or not bats are present, say what impacts the proposed development would have and advise mitigation measures. In cases where bats are found to be present there may be a requirement for a development licence, issued by the Welsh Assembly Government and the information needed for the bat survey report will also be required for the development licence. Having this information will now help speed up any future licence application.

#### The Survey

The bat survey and report should be undertaken in accordance with Bat Conservation Trust (2007) Bat Surveys – Good Practice Guidelines. Bats hibernate between October and April. They are virtually impossible to survey in winter as they crawl into crevice networks where they are unlikely to be detected. However, it may be possible for a surveyor to undertake a scoping survey during this time to assess the likelihood of the building being suitable for hibernating bats and/or to find evidence of an old summer roost. If potential/evidence of bats is found then emergence surveys during the flight period will be required.

#### The Report

The report by your surveyor should follow the template as detailed in the Bat Surveys – Good Practice Guidelines. Bat Conservation Trust (2007, p.27–28) to ensure sufficient information is provided to assess the nature of the use by bats and the mitigation measures required if bats are present. These are summarised below:

- Date of the survey;
- Location of the survey (including six-figure grid ref.);
- List of the personnel who undertook the survey (including details of relevant licences)
- Weather conditions
- Proposed works
- Aims of study
- Methodology
- Results

- Assessment – constraints to study/potential impacts considered
- Recommendations and mitigation required
- Summary
- Other: references, photographs, report forms

What happens if bats are found?

Your planning application is unlikely to be refused on the basis of bats being present. Mitigation should be integrated into your detailed plans, based on the results of the survey and recommendations therein. This is to show that the required mitigation can be incorporated into the proposed application so as to avoid harm to the bats and ensure legislation is complied with. This should be accompanied by a basic method statement, again reflecting the recommendations in the survey. It is likely that the surveyor will advise you in this respect. CCW will be consulted on the results of the survey and mitigation plans. There will likely be a requirement for a development licence, issued by the Welsh Assembly Government. Relevant conditions will be attached to your planning permission. Occasionally, if significant evidence of bat occupation is found, a further survey may be necessary at a later date.

#### BARN OWLS

Barn Owls are also fully protected under the Wildlife and Countryside Act 1981 and the surveyor should also survey for the presence/signs of presence of this species.

Relevant applications submitted without a bat/barn owl survey complying with the above requirements, will be likely to attract a recommendation for refusal due to the lack of substantive information on a material consideration.

- 19 A protocol is being developed
- 20 At pre-application discussion applicants are advised to carry out a bat survey of trees or buildings which could form part of the development to ascertain whether there are any present. Then the survey is reviewed as part of the planning application process. A condition is usually placed on any planning permission granted requiring prior to the felling of trees or demolition of buildings they are checked again by a licensed bat worker. We are aware that bats are a protected species therefore if an application is EIA development then the survey & mitigation measures need to be provided for the EIA to be considered 'complete'.
- 21 The requirement for a bat check is included in the local list of requirements for application validation. This provides a link to the Council's website where the recently adopted Dorset bat protocol is available to view together with a number of advice notes related to various protected species.
- 22 information on notes accompanying validation list
- 23 just highlight they may need a bat survey if a situation where bats are likely to be present, for example barn conversion
- 24 Depends if they come to us prior to submitting an application - most don't. If they do and it is obvious that a survey would be needed/advisable (e.g barn conversion, demolition etc) then they would be advised of the need for a survey and pointed to the relevant section of the development plan that they would have to comply with, but it is rather patchy and will, I suspect, depend on the officer who is dealing with the enquiry. I have a background in nature conservation so am confident in dealing with such issues, but this is not the case for all my colleagues.
- 25 If the proposals involve barn conversions a bat survey would be required and this is stated in our advice notes. If the proposals involve the demolition of a building then most officers would request a bat survey as a matter of course.
- 26 The GIS system used to check site constraints at the pre-application stage has a bat alert layer. If this highlights any potential issues then the applicant is referred to the guidance note which can be either viewed online or a copy may be printed off for them.
- 27 Very little. Referred to Natural England and told they may need to do a survey if, for example, are converting an old building/barn
- 28 The information in the Tyne & Wear Local Requirements document is freely available and gives information

on the criteria which would trigger any kind of biodiversity survey to accompany a planning application. In addition, any prospective applicant can contact the Council for pre-application advice.

29 None

30 pre application discussions with Ecological officers

31 Advice on bio-diversity is provided on the I App guidance notes and on local validation guidance:

Biodiversity survey and report - Where a proposed development may have possible impacts on wildlife and biodiversity, information should be provided on existing biodiversity interests and possible impacts on them to allow full consideration of those impacts. Elmbridge has adopted the thresholds for when biodiversity surveys and reports are required with applications as set out in the good practice template produced by the Association of Local Government Ecologists ([www.alge.org.uk](http://www.alge.org.uk)). Where proposals are being made for mitigation and/or compensation measures information to support those proposals will be needed. Where appropriate, accompanying plans should indicate any significant wildlife habitats or features and the location of habitats of any species protected under the Wildlife and Countryside Act 1981, the Conservation (Natural Habitats etc) Regulations 1994 or the Protection of Badgers Act 1992. Applications for development in the countryside that will affect areas designated for their biodiversity interests are likely to need to include assessments of impacts and proposals for long-term maintenance and management. This information might form part of an Environmental Statement, where one is necessary. Certain proposals which include work such as the demolition of older buildings or roof spaces, removal of trees, scrub, hedgerows or alterations to watercourses may affect protected species and will need to provide information on them, any potential impacts for them and any mitigation proposals for such impacts. Government planning policies for biodiversity are set out in Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS9) (August 2005), PPS9 is accompanied by a Government Circular: Biodiversity and Geological Conservation – Statutory obligations and their impact within the planning system (ODPM Circular 06/2005, Defra Circular 01/2005 and Planning for Biodiversity and Geological Conservation: A Guide to Good Practice.

Advice on bats is also available at <http://www.elmbridge.gov.uk/envhealth/pests/bats.htm>

32 Information within planning application

33 none

34 A list of bat surveyers in the area.

35 None. Developer would probably be referred to Natural England advice / Planning Policy Statement 9.

36 see below

37 none

38 Suggests a bat survey be undertaken if any part of proposal includes demolition. Suggests advice be sought from an ecologist. No specific guidance.

39 Protect species checklist which advises in what circumstances a report will be required to accompany an application

40 Advice is available via the Landscape Section from Landscape Officers (including myself) regarding the law pertaining to protected species (re planning) and whether a protected species report is required for an application or on the likelihood of protected species being present at a development site - from a generalised point of view (site visits are not usually undertaken by Council staff to determine the need for a survey).

41 Herts biological records centre bat group offer advice to applicants

42 Natural England advice notes and County advice notes

43 If an applicant asks or if there is a likelihood of bats on site or if the proposed works may disturb a potential bat habitat we would give the applicant very basic advise, usually verbally; and perhaps give them some written information provided or published by SNH. We will advise whether a bat survey would be required as part of the planning application process.

44 Advised to seek advice of a suitable qualified professional -offer a list of consultants within local area

45 Can advise applicants pre-app as to requirements and biodiversity checklist can be followed to guide applicants as to what surveys and assessments need to be sought/issues considered when submitting an

application.

46 Checklist - see <http://www.hampshirebiodiversity.org.uk/lapp.htm>. Should be used by all applications, but doesn't tend to be. Householder apps have a separate Checklist - see for example <http://www.testvalley.gov.uk/pdf/Biodiversity%20Checklist%20tvbc%20householder%20updated%20July08.pdf>

47 A 'biodiversity checklist' is available online which provides information to applicants re the situations when ecological information will be required to support a planning application. It is encouraged (i.e. not mandatory) that the applicants refer to this checklist before submitting an application.

The checklist contains a list of scenarios that indicate to the applicant when a bat assessment/survey should be undertaken (the list is similar to that provided in Box 2.1 of the BCT survey guidelines). Further advice is then provided re the level of information that will be required i.e. full survey info, mitigation strategy etc. An informative note is also provided on the LPA planning website providing further info re when bats need to be taken into consideration.

48 The Council's bat protocol is provided which explains the type of applications that must be accompanied by a bat/barn owl survey. There is further information on the Council's website.

49 If pre-application advice sought, case officer would advise of need to provide ecological survey if considered appropriate

50 Am not sure. I screen all positive bat surveys for the district/borough authorities in Dorset, so am not sure what each LPA advise (but could find out).

We use the Dorset Bat Protocol available on our website  
<http://www.dorsetforyou.com/index.jsp?articleid=391637>.

Bat Conservation Trust are looking to roll this out nationally and also have presented it at Natural England (SW) meeting with ecologists from other counties and NE staff. We started using it in April 2009 and so have data for the past 6 months. It is working really well.

51 Usually none unless a formal pre-application enquiry is made and bats are highlighted as a potential issues (such as a proposal that involves conversion of a barn or alterations to the roof of a building in a area where bats may be present)

52 Short leaflet on bats and bat survey requirements. Advice is also available from Planners and our Environment Planners.

53 Guidance note on Bats and Development

54 None

55 A (sic)

56 Consultation with ecologists; Access to Guidance Notes relating to Bats and Barn Owls; all applications for rural building conversions or applications which fall within a conservation constraint require an ecological survey prior to validation

57 Whether a bat survey will be required with the planning application.

### 9. does your Planning Authority have an (internal) guidance note to inform planning officers about bats and how to screen applications for issues with bats?

yes	50.9%	29
no	40.4%	23
don't know	8.8%	5
comments		17
<b>answered question</b>	<b>57</b>	
<b>skipped question</b>	<b>26</b>	

1 A bat and barn owl survey checklist

2 Planning guidance is available but no checklist for screening

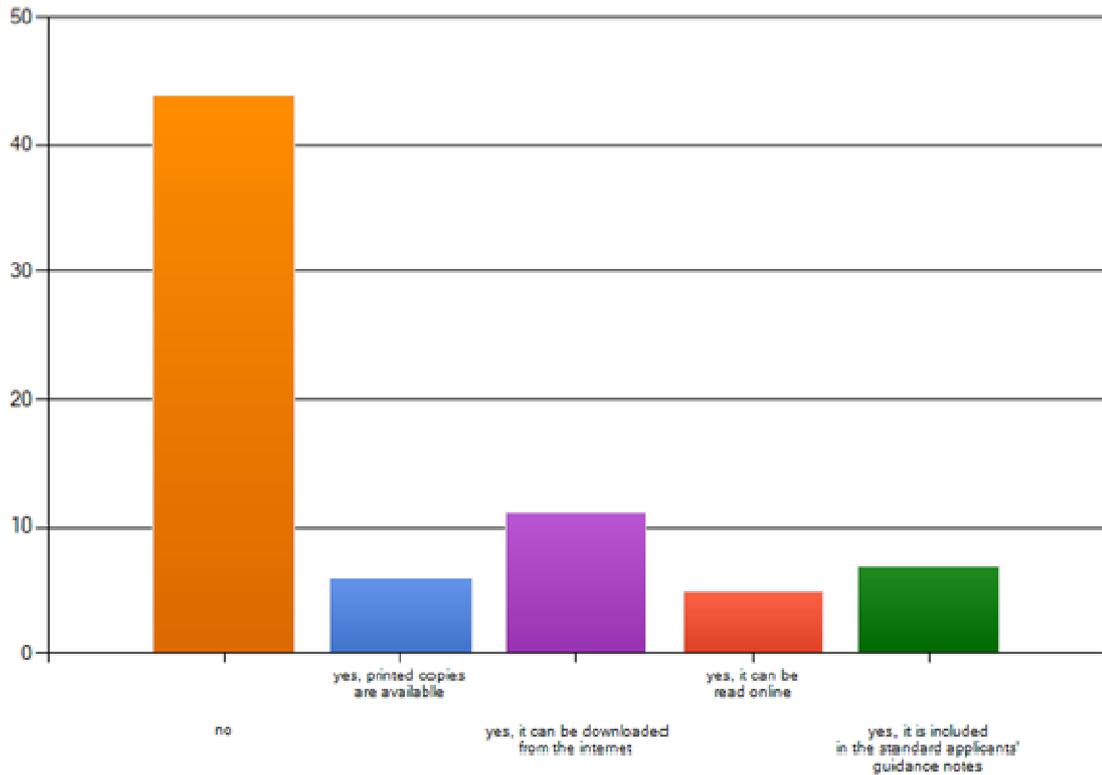
3 Trigger list; shouldn't be publicly available because an unscrupulous applicant could use it as a guide to "how to remove all traces of bats from a building or render a building unsuitable for bats"

4 as far as i am aware planning officers would contact me or SNH

- 5 Regarding CCW's role
- 6 In preparation - currently there is a powerpoint presentation on protected species and development
- 7 Bat Survey Criteria Document
- 8 The Dorset bat planning protocol provides a guidance matrix
- 9 I think there might be something somewhere, but I doubt many of us are aware of it
- 10 All planners have recieved some information and training, but not in the form of 'official' internal guidance.
- 11 Natural England Guidance / Planning Policy Statement 9 Guidance followed.
- 12 From Herts BRC
- 13 Training has been given to planning officers and validation staff in my Districts by HCC ecologists;  
Currently producing a briefing note for planning officers
- 14 The Ecology Group provide training to the planning officers to assist in the screening of bat issues.
- 15 Not as such. The initial screening is done by validation officers who have access to GIS information regarding known bat roosts and potential bat activity zones
- 16 it is lengthy and dc officers are not experts in this area
- 17 This is being worked on.

**10. is your Planning Authority bat screening process publicly available?**

no	77.2%	44
yes, printed copies are available	10.5%	6
yes, it can be downloaded from the internet	19.3%	11
yes, it can be read online	8.8%	5
yes, it is included in the standard applicants' guidance notes	12.3%	7
<b>answered question</b>	<b>57</b>	<b>57</b>
<b>skipped question</b>	<b>26</b>	<b>26</b>



## 11. what happens relating to bats when a planning application is received?

1. Nothing at present.
2. If it is identified a survey is required this must be provided up front prior to validation. All plans submitted are expected to have been produced with consideration to the plans drawings
3. Statutory Bodies (CCW) consulted.  
Application is not determined unless the 3 tests are satisfied. Legislation explained Issues identified and conditioned where relevant. Full mitigation requested prior to determination.
4. Seldom considered pre-validation
5. A 'NESBReC' (North East Scotland Biological Records Centre) report identifies any applications where bats have been recorded within a certain radius of the application site. This is flagged up to our Environment Planners who may highlight the need for a bat survey to the development management planners.
6. Nothing.
7. If it is positive it comes to Dorset County Council for one of the ecologists to look at (we funding for three years from NE to do this, but it isn't enough to cover the time). I comment on the survey and bat mitigation plan. Any problems I deal with the consultants/architects/agents directly to save going through the LPA each time.
8. application checked to see if complete by vetting team
9. The Dorset Environment Centre Record is checked to see whether there is any prior knowledge of biodiversity issues on the site. The application is checked to see whether it involves demolition or development that could impact a bat roost in accordance with the Dorset Bat/Barn Owl protocol. If a bat/ecology survey is necessary but has not been provided then the application is not validated.
10. It varies. Ideally, the planning officer should assess the likelihood of bats being affected by the proposal (based on information contained within the 'Biodiversity Checklist' and Natural England Standing Advice); if a bat assessment/report has been provided, the application should be validated; if no bat assessment has been provided, the application should not be validated.  
  
I suspect that more often than not, the application is validated without the appropriate level of bat info (this is often due to the very large number of householder applications involving alterations to roofs e.g. loft extensions).
11. It should be checked for whether any necessary bat information has been submitted, and not validated if information is required but not submitted. However, often the validation process does not pick up on this and it is only considered later.
12. Checklist reviewed - if no protected species / sites issues, then usually validated. Otherwise returned. If no checklist, or if checklist indicates no issues, generally validated I think (my Districts are still in the process of getting used to IAPP and not fully up to speed yet...)
13. Checked against local validation criteria, if found that possibility of bats to be present/affected a survey undertaken by suitably qualified person is requested (if not already submitted)
14. Sometimes pre-application advice will have determined a bat survey was necessary for the application to be processed - in this case if no bat survey was submitted with the application we would request a bat survey be submitted within 21 days or the application is refused under delegated powers.  
Sometimes judging from a set of plans and proposal, it looks like disturbance of bat habitat is a real issue, again if no bat survey was included with the application we would request a bat survey be submitted within 21 days or the application will be refused under delegated powers.  
In most cases we leave it until a site visit by the case-officer has taken place and subsequently determine if a bat survey would be required. Often 21 days is not enough time to get a bat survey done and submitted with any mitigation measures, so we'd recommend the application is withdrawn and submitted at a later date once the information has been gathered.  
As planning officers we have had some training (from SNH) about likely bat habitats and mitigation measures and the process for getting a licence from Scottish Govt. If in doubt we would contact local SNH officer.
15. Check info regarding bats has been received if required for that development. If required, app is not made valid until received.
16. we consult Herts BRC
17. The council has adopted the ALGE template for the validation of planning applications as a Local Requirement on most types of applications. If a bat survey is not attached to an application and the guidance notes from the

ALGE template indicate that one is required, the application won't be validated until a bat survey is received.

If the local requirements do not trigger the receipt of a bat survey, then any issues relating to protected species will have to be highlighted by the Planning Officer and the Landscape Section notified.

18. It is checked to ascertain if a protected species survey is required for registration
19. constraints checked
20. n/a
21. Not sure what this question is asking.
22. Ask for a bat survey.
23. nothing
24. The Surrey Bat Group screen the weekly lists for applications that are close to trees and / or water and advise whether a bat survey may be required.
25. screened against our validation checklist.
26. Bio officer checks weekly list of application and picks cases of interest and then id's potential interest, usually two to three weeks after validation. This triggers standard letter to be sent to applicant requesting survey together with list of local consultants.
27. We have created a bat risk map on a GIS system. Wooded areas and fresh water habitats are mapped along with 200m and 400m buffer zones. When an application is received, the address is put into the system to see if it falls within a buffer zone. If it does, other criteria such as the age of the building and the nature of the development are checked against pre-set criteria to see if a survey is required. This role is carried out by DC support staff. Any applications that trigger the criteria are then sent to me to double check and make the final decision as to whether a survey is required.
28. Check for survey if an old building/barn - otherwise, nothing
29. When a planning application is received it is passed to the case officer to check and validate. At this point the constraints of the site are checked and if there is a concern that bats may be affected by the proposal a bat report is requested before the application can be validated.
30. Nothing
31. If an application is accompanied by a bat survey we consult Natural England and the local bat group.
32. nothing
33. they continue to fly around - an application isn't processed until validated. Sometimes pre-application discussion will have pre-empted a bat survey
34. Currently an application which includes the demolition of a dwelling would need to be accompanied by a bat check and necessary mitigation measures prior to validation. Although the Dorset bat protocol was supposed to be in effect from the start of April our authority is yet to officially adopted it and so other applications are currently validated without the need for a bat check.
35. The application is checked to see if any reference to bats has been made. If not then the planner liaises with the ecologist to ascertain whether a bat survey is required. If it is, the planner will write to the applicant requesting a survey is undertaken & if bats are found, mitigation measures provided. If the application provides a survey already, this is assessed by the county ecologist.
36. Nothing
37. The ecologist checks the weekly list. A survey is requested prior to consent if one does not accompany an application, either the application is held until information is received or refused/withdrawn on lack of information. In some cases an advisory is placed on applications if it is deemed unreasonable to request a full bat survey.
38. The Planning Officers have a note of the types of developments that may affect bats and their roots. Any applications received fitting such groups will be passed to the Biodiversity Officer and Tree Officer for commenting and advice. If appropriate, surveys are asked for and any reports are sent to such Officers for commenting. Communications will also be made with SNH, if required.
39. CCW receives the application from the LPA. We then assess the effect of the proposed development upon the Favourable Conservation Status (FCS) of bats, and respond to the LPA. Our responses broadly fall into one of the following categories: no objection, objection, no objection provided conditions are included (specified), holding objection pending further information.

40. Unsure- I am not involved in planning casework unless specifically contacted by the planning department, applicant or consultant.
41. This will depend if the issue has been picked up by planner e.g. loft conversion a planner may not consider bats or ecological concerns as an issue while if it is the building of a cottage in woodland then there would be an ecological aspect.
- If it is a large application and an ecological study has been submitted it will in all likelihood come to me as well as SNH for consultation
42. C (sic)
43. Nothing specific
44. Application must be validated in accordance with the planning authority's stipulations. For example, any application affecting a redundant structure (other than a residential property) that might conceivably have bats in it, must be accompanied by a full bat survey and mitigation report. Failure to do so without good reason leads to automatic refusal of planning permission.
- Where the survey and mitigation report are received, these are copied to CCW too for comment. The ecology team provides advice to the planning case officer on the merits of the report, offering recommendations and further advice and, if the report is satisfactory, recommended conditions etc.
45. - Screened by case officer
46. The planning application will be validated without any reference to nature conservation issues.
47. Nothing - bats may be raised as an issue by a planner in any discussions with the applicant.
48. If relevant, i.e. the building scores 15 points or above on our checklist, if a bat survey has not been submitted. A bat survey is requested and if not produced within the determination deadline. The application is either refused or recommended for withdrawal and re-submission based on insufficient information.
49. Theoretically, if bat info is not provided, the application cannot be registered/validated. However, I fear that many slip through the net at this stage. Hopefully I APPs will stop this happening.
50. The local record centre report is checked and the check list is asked for/looked at if appropriate.

**12. what happens relating to bats when an application is validated?**

- 1 That a sufficient survey has been undertaken (i.e. correct time of year, appropriate equipment and people used etc.) and a full mitigation statement with drawings submitted.
  - 2 The planning case officer should ensure that all the relevant info is provided, and I will be consulted. If further info is needed, the 8 week 'countdown' can be paused until the info is received. this includes survey and mitigation info. We will then advise application on WAG license, if needed.
  - 3 As above.
  - 4 The ecologist is either consulted in respect of an application a planner believes has potential for bats or the ecologist picks applications off of the weekly planning list to look at for bats.
  - 5 The local record centre runs a search on all applications. The application is then assessed through the plans for the likelihood of bats being present. A site visit will usually then be made and advice given to the applicant on site and through the consultation process with the planning officer.
  - 6 - Weekly meeting with ecologist picks up potential applications beyond those screened by case officer
  - 7 See 11.
  - 8 The application is sent to the ecology team for comment
  - 9 c
  - 10 Note sure what you mean here so I am going with the NOTHING answer.
  - 11 Unsure- I am not involved in planning casework unless specifically contacted by the planning department, applicant or consultant.
  - 12 CCW's response goes to LPA, we may be asked for further advice. Applicant may then apply for a derogation licence from the Welsh Assembly Government (WAG). CCW advise WAG on FCS in relation to licensing, and usually require more detailed information on bats and mitigation as part of this process.
  - 13 If bats and their roosts are found, Officers will liaise with SNH to ensure proper procedures are carried out with respect to licensing and mitigation.
  - 14 The ecologist checks the weekly list. A survey is requested prior to consent if one does not accompany an application, either the application is held until information is received or refused/withdrawn on lack of information. In some cases an advisory is placed on applications if it is deemed unreasonable to request a full bat survey.
  - 15 The development control case-officer will screen the application and mark it for the ecologist if he suspects a bat issue.
  - 16 If a survey was requested at pre-application stage, the planner will check to see if a survey is included
  - 17 Applications that have the potential to impact on bats are flagged up with reminders that an informative note should be attached to any grant of consent advising the applicant that bats are a protected species and if they are found during work then all operations should cease, the area in which bats are found should be made secure and advice sought from Natural England.
  - 18 the planning officer is supposed to use the checklist to determine whether a bat survey is required -depends on officer concerned though and their understanding
  - 19 check there's a bat survey
  - 20 If an application is accompanied by a bat survey we consult Natural England and the local bat group.
  - 21 Nothing. After validation the technical admin officers make up a file for the case officers. This includes a list of "constraints" taken from our GIS system and includes information such as whether the site is in a conservation area, whether it is in the green belt or a flood risk zone etc and also whether it is in the "bat alert zone". It is the responsibility of the officer to look at this information, consider the type of proposal and decide if a bat survey is needed. The admin staff that carry out the validation process are, to be honest, poorly trained and could not carry out this task adequately. The authority have an in house ecologist, and also take advice from the experts at the local record centre, who look through the weekly list of applications received and will inform us if they think a survey is required
  - 22 Once the application is validated case officers will check the details of the report against the guidance for the minimum standards for bat surveys which have been produced by the local records office. Officers will also check to see what the conclusions of the survey are. If there is any doubt as to the standard of the survey or its conclusions a copy will be sent to the ecologist at the local records office for comments. Natural England may also comment under certain circumstances. We do not have a planning ecologists.
  - 23 Send survey to Natural England or request as per above
  - 24 If the system I described for question 11 works as it should, only applications that either do not require a survey, or have a survey submitted with the application are validated.
- If a survey is submitted with the application, then I am consulted on that application and will judge whether the survey is adequate and advise the planners on any necessary conditions to be attached should the application be approved.
- 25 see above
  - 26 Consultation where appropriate with Ecology officer

- 27 If a biodiversity survey (including bats) is required, the applicant or their agent would be advised accordingly. However in respect of larger schemes subject to pre-application advice, issues regarding the potential for bats would have been flagged up at that stage.
- 28 nothing
- 29 Ask for a bat survey within 2 months or application will be refused
- 30 A survey would be expected to accompany the application if impact on Bats / bat habitat likely to be an issue.
- 31 n/a
- 32 flagged up
- 33 The council's landscape (bio-diversity) officer is consulted together with Natural England (although the latter seem to be moving away from wanting to be consulted).
- 34 When a bat survey is received with an application, the landscape section receive a consultation from Planning officers. The Landscape Officers then address any protected species issues in accordance with legislation and PPS9. This may result in the need for further survey work (prior to determination of application), mitigation and conditions.
- 35 we consult Herts BRC
- 36 County Ecologist notified and Natural England
- 37 Applications are validated irrelevant of bat issues.
- 38 Survey is sent to Loc Authority Ecologist for consultation and comment
- 39 Passed to case officer - if app is highlighted by HBIC (record centre) as near bat (or other protected / notable spp record) then case officer will usually consult me.

If case officer thinks there are possible bat issues but no survey data, they will consult me either informally for a second opinion on the need to request surveys, or formally if it is definite.

If bat info is supplied, then they will consult me for a response on survey report. mitigation proposals, info regarding 3 tests in Habs Regs etc.

- 40 A planner or an ecologist (if referred to the ecologists) may determine the need for information about bats. If survey has been submitted it will be referred to ecologist who assesses whether it is adequate, and (if bats are to be impacted) whether, considering the mitigation proposed, the works proposed are acceptable (having regard to the third test of the Habs Regs). It is the responsibility of the planning officer to consider the first two tests in this situation.
- 41 In most cases, the application will be sent to the ecologist for an assessment - potential impacts to bats should be picked up at this stage.

If the proposals are considered likely to impact upon bats but no assessment/report has been provided, the planning officer is advised to reject the application citing insufficient info re protected species.

If a bat assessment/report is provided, the ecologist will review the report, its results and recommendations before advising the planning officer accordingly.

Where a report recommends that a Natural England EPS Licence is required, the applicant will be asked to provide further information relating to how the proposals satisfy the 3 derogation tests (Reg 44, Habs Regs 1994) - a decision re the application will be suspended until this info is provided. If it is considered that the 3 tests have been satisfied, a condition will be imposed on any planning approval stating that an EPS Licence must be obtained before any development activity affecting bats can commence (all subsequent activity will then be bound by the conditions of the licence).

- 42 If a survey suggests that bats are present then we check for a mitigation strategy which is sent to Natural England/Dorset County Ecologists for their comment.
- 43 passed to planning case officer, who then passes bat information to Planning - Trees and Environment team as part of internal consultation
- 44 Only validated when have received bat survey and bat mitigation plan and/or biodiversity checklist. Different LPAs in Dorset have different requirements.
- 45 When an application is received it goes to the validation team who will screen the application based on the nature of the development and the location in relation to known bat roosts and areas where bats may be active. If necessary the validation officer will request a survey prior to validation but to be honest this system is not very effective due to a lack of staff training. It's very common for application to be validated only for the planning officer to feel that a survey is required.
- 46 If the planning application is likely to involve works to the roofspace, a bat survey will usually/often be requested. Sometimes the planners seek advice from the Environment Planner before deciding whether to require a bat survey.
- 47 After screening by the LRC the ecologist decides whether its reasonable to request a bat survey
- 48 Conditions. Legislation explained. Support/guidance offered.
- 49 We consult with relevant specialists, if any issues which are negotiable then we negotiate, within Government set

time limits otherwise application is refused. Nothing is approved subject to condition unless mitigation is provided up front that satisfies that it can work

- 50 Check is done by the Local Records Centre, Ecologist is asked for comments.

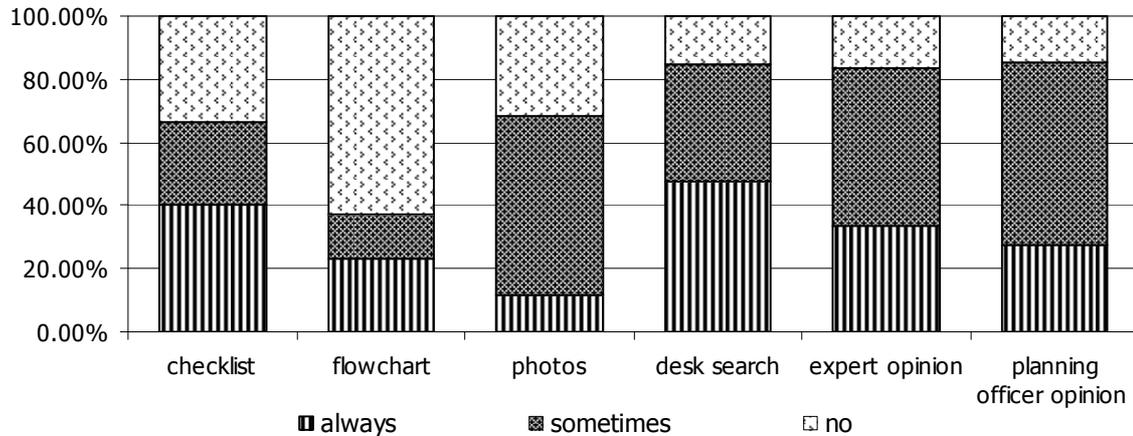
**13. does your process to screen for potential bat issues include use of the following: (please tick one per row)**

Answered 50, skipped 33.

	no	always	sometimes	Responses
checklist of features	33.3% (15)	<b>40.0% (18)</b>	26.7% (12)	45
flowchart of advice	<b>62.8% (27)</b>	23.3% (10)	14.0% (6)	43
site photographs	31.8% (14)	11.4% (5)	<b>56.8% (25)</b>	44
search of existing data/ records	15.2% (7)	<b>47.8% (22)</b>	37.0% (17)	46
expert bat ecologist opinion	16.7% (8)	33.3% (16)	<b>50.0% (24)</b>	48
opinion of case planning officer	14.9% (7)	27.7% (13)	<b>57.4% (27)</b>	47

Other:

- site visit by ecologist to assess potential
- Planning advice notes, UDP policies
- opinion of env. strategy officer
- Opinion of Local Authority Ecologist
- The Council has a GIS layer indicating where the presence of protected species is known.
- external unsolicited (but welcome) advice from local records centre experts
- opinion of NE or Landscape Officer
- it is not a formalised process.
- Only receive information from case officer, process not uniform
- Opinion of LA ecologist



**14. which of these possible development proposal ACTIVITIES would indicate need for a bat survey? (please rate each between 'not at all' and 'definitely')**

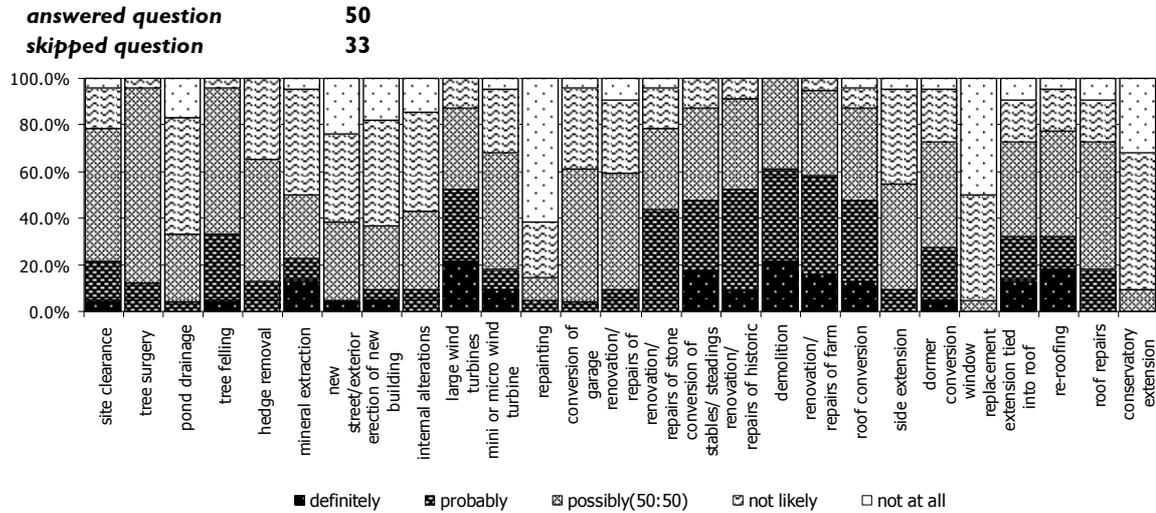


Table of All responses: modal scores are darker shaded

	not at all	not likely	possibly(50:50)	probably	definitely	Response Count
site clearance	4.1% (2)	14.3% (7)	<b>51.0% (25)</b>	24.5% (12)	6.1% (3)	49
tree surgery	2.0% (1)	4.0% (2)	<b>62.0% (31)</b>	24.0% (12)	8.0% (4)	50
pond drainage	24.5% (12)	<b>42.9% (21)</b>	26.5% (13)	2.0% (1)	4.1% (2)	49
tree felling	2.0% (1)	2.0% (1)	<b>54.0% (27)</b>	32.0% (16)	10.0% (5)	50
hedge removal	6.1% (3)	28.6% (14)	<b>44.9% (22)</b>	14.3% (7)	6.1% (3)	49
mineral extraction	4.4% (2)	26.7% (12)	<b>37.8% (17)</b>	20.0% (9)	11.1% (5)	45
new street/exterior lighting	14.9% (7)	27.7% (13)	<b>44.7% (21)</b>	4.3% (2)	8.5% (4)	47
erection of new building	14.6% (7)	<b>37.5% (18)</b>	<b>37.5% (18)</b>	6.3% (3)	4.2% (2)	48
internal alterations	10.6% (5)	27.7% (13)	<b>53.2% (25)</b>	6.4% (3)	2.1% (1)	47
large wind turbines	2.1% (1)	8.3% (4)	27.1% (13)	<b>35.4% (17)</b>	27.1% (13)	48
mini or micro wind turbine	4.3% (2)	23.4% (11)	<b>40.4% (19)</b>	14.9% (7)	17.0% (8)	47
repainting	<b>43.5% (20)</b>	39.1% (18)	10.9% (5)	6.5% (3)	0.0% (0)	46
conversion of garage	6.1% (3)	32.7% (16)	<b>51.0% (25)</b>	6.1% (3)	4.1% (2)	49
renovation/ repairs of concrete bridge	6.3% (3)	22.9% (11)	<b>35.4% (17)</b>	29.2% (14)	6.3% (3)	48
renovation/ repairs of stone bridge	4.1% (2)	8.2% (4)	32.7% (16)	<b>38.8% (19)</b>	16.3% (8)	49
conversion of stables/ steadings	4.1% (2)	12.2% (6)	<b>28.6% (14)</b>	26.5% (13)	<b>28.6% (14)</b>	49
renovation/ repairs of historic building/structure	2.0% (1)	6.1% (3)	26.5% (13)	<b>36.7% (18)</b>	28.6% (14)	49
demolition	4.1% (2)	0.0% (0)	28.6% (14)	<b>34.7% (17)</b>	32.7% (16)	49
renovation/ repairs of farm steadings	2.2% (1)	2.2% (1)	28.9% (13)	<b>33.3% (15)</b>	<b>33.3% (15)</b>	45
roof conversion	4.1% (2)	6.1% (3)	<b>32.7% (16)</b>	<b>32.7% (16)</b>	24.5% (12)	49
side extension	4.2% (2)	35.4% (17)	<b>41.7% (20)</b>	14.6% (7)	4.2% (2)	48
dormer conversion	4.3% (2)	25.5% (12)	<b>36.2% (17)</b>	23.4% (11)	10.6% (5)	47

window replacement	35.4% (17)	<b>39.6% (19)</b>	18.8% (9)	2.1% (1)	4.2% (2)	48
extension tied into roof	6.3% (3)	16.7% (8)	<b>41.7% (20)</b>	20.8% (10)	14.6% (7)	48
re-roofing	6.3% (3)	8.3% (4)	<b>37.5% (18)</b>	25.0% (12)	22.9% (11)	48
roof repairs	8.3% (4)	12.5% (6)	<b>43.8% (21)</b>	27.1% (13)	8.3% (4)	48
conservatory extension	20.8% (10)	<b>58.3% (28)</b>	12.5% (6)	6.3% (3)	2.1% (1)	48
					Comments	17

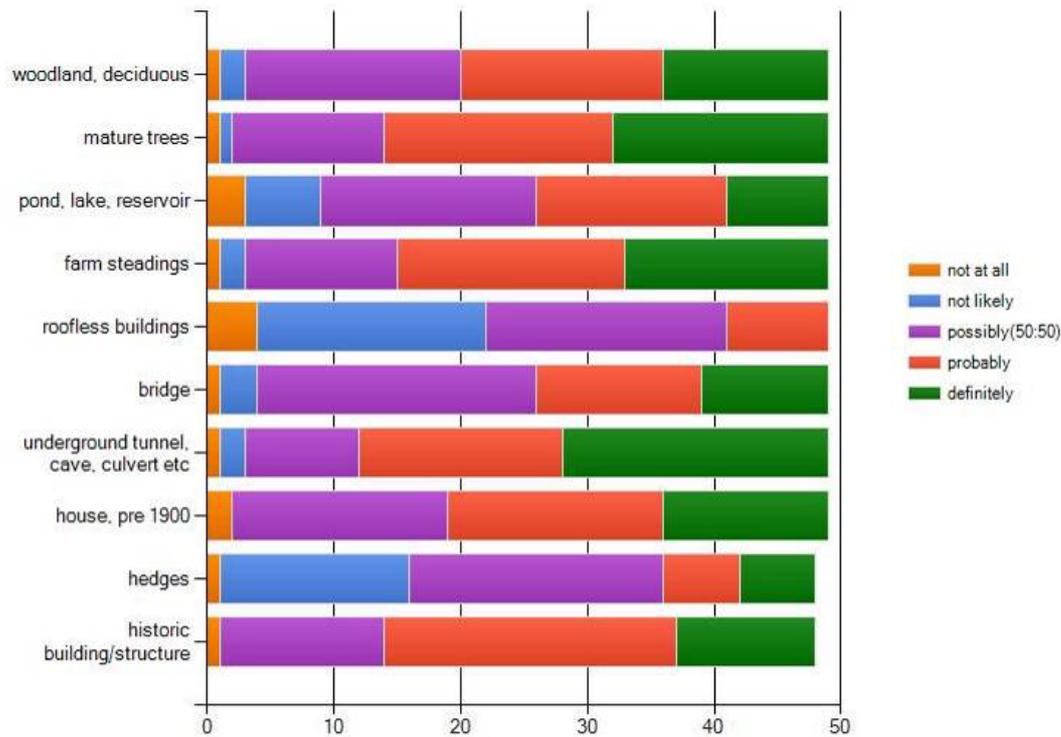
1. Less likely to ask for a survey for householder applications
2. repainting, site clearance, internal alterations, repairs, demolition (other than for a listed building or a building in a conservation area) would NOT require planning permission and so the question is not relevant. Window replacement and re roofing would only require permission if the building is listed. Its really impossible to say for the others with any confidence as much would depend on the site context, proximity to foraging habitat etc
3. The ecologist would make an informed decision re the necessity for bat surveys based on suitability of buidling/tree/structure for roosts, type of habitat affected, likelihood of bats being present etc. Quite often, proposals that may have an indirect impact to bats will be overlooked by the planners (e.g. new lighting). In the vast majority of cases, surveys will only be requested when an activity is likely to result in a breach of the legislation protecting bats; for indirect impacts such as lighting, recommendations are often provided by the ecologist to mitigate a possible impact to bats (in the absence of survey info).
4. My answers are based on the activities being initial triggers - further assessment would be carried out based on surrounding habitat, nearby records, timing / scale of work etc
5. Not all of these require planning permission
6. Don't need planning permission for re-roofing on its own
7. Age, type and location of building would also be taken into consideration, as would age of trees.
8. No all the above require planning consent
9. Many of these things, such as repainting, window replacement, re-roofing etc would not require planning permission and so we would not have any control. It's also pretty much impossible to comment on generalities, specific details would be needed including an assesment of the local habitat and foraging sites.
10. My authority does not deal with some of the above so their are guesses. I work for a County Council.
11. Extensions and Householder Applications will have advisory placed on application and applicant will be advised if bats are present/suspected a survey should be conducted prior to consent.
12. this is from POV of SNCO
13. i would request a bat survey be carried out before any work was carried out on the vast majority of sites/ cases.
14. As you can see I have pretty much put 50:50 for all. This is because it depends on the situation of the development site is it a likely bat location is there anything that would make you think that either bats feed or roost in site or ust it to navigate. It is impossible to say yes def. in any case and the same for the opposite end of spectrum.
15. The "not likely" responses are due either to these not likely to occur here owing to the type of built fabric or alternatively these occurring within a residential property, in which case this is CCW's legal duty to advise, not the local planning authority's.
16. dependent on case
17. It is very difficult to generalise - it will often depend on the indivial application site

**Q.14 Results filtered, with only responses from those employed as planners, showing a more conservative approach:**

	not at all	not likely	possibly(50:50)	probably	definitely	Response Count
site clearance	4.3% (1)	17.4% (4)	<b>56.5% (13)</b>	17.4% (4)	4.3% (1)	23
tree surgery	0.0% (0)	4.2% (1)	<b>83.3% (20)</b>	12.5% (3)	0.0% (0)	24

pond drainage	16.7% (4)	<b>50.0% (12)</b>	29.2% (7)	4.2% (1)	0.0% (0)	24
tree felling	0.0% (0)	4.2% (1)	<b>62.5% (15)</b>	29.2% (7)	4.2% (1)	24
hedge removal	0.0% (0)	34.8% (8)	<b>52.2% (12)</b>	13.0% (3)	0.0% (0)	23
mineral extraction	4.5% (1)	<b>45.5% (10)</b>	27.3% (6)	9.1% (2)	13.6% (3)	22
new street/exterior lighting	23.8% (5)	<b>38.1% (8)</b>	33.3% (7)	0.0% (0)	4.8% (1)	21
erection of new building	18.2% (4)	<b>45.5% (10)</b>	27.3% (6)	4.5% (1)	4.5% (1)	22
internal alterations	14.3% (3)	<b>42.9% (9)</b>	33.3% (7)	9.5% (2)	0.0% (0)	21
large wind turbines	0.0% (0)	13.0% (3)	<b>34.8% (8)</b>	30.4% (7)	21.7% (5)	23
mini or micro wind turbine	4.5% (1)	27.3% (6)	<b>50.0% (11)</b>	9.1% (2)	9.1% (2)	22
repainting	<b>61.9% (13)</b>	23.8% (5)	9.5% (2)	4.8% (1)	0.0% (0)	21
conversion of garage	4.3% (1)	34.8% (8)	<b>56.5% (13)</b>	4.3% (1)	0.0% (0)	23
renovation/ repairs of concrete bridge	9.1% (2)	31.8% (7)	<b>50.0% (11)</b>	9.1% (2)	0.0% (0)	22
renovation/ repairs of stone bridge	4.3% (1)	17.4% (4)	34.8% (8)	<b>43.5% (10)</b>	0.0% (0)	23
conversion of stables/ steadings	0.0% (0)	13.0% (3)	<b>39.1% (9)</b>	30.4% (7)	17.4% (4)	23
renovation/ repairs of historic building/structure	0.0% (0)	8.7% (2)	39.1% (9)	<b>43.5% (10)</b>	8.7% (2)	23
demolition	0.0% (0)	0.0% (0)	<b>39.1% (9)</b>	<b>39.1% (9)</b>	21.7% (5)	23
renovation/ repairs of farm steadings	0.0% (0)	5.3% (1)	36.8% (7)	<b>42.1% (8)</b>	15.8% (3)	19
roof conversion	4.3% (1)	8.7% (2)	<b>39.1% (9)</b>	34.8% (8)	13.0% (3)	23
side extension	4.5% (1)	40.9% (9)	<b>45.5% (10)</b>	9.1% (2)	0.0% (0)	22
dormer conversion	4.5% (1)	22.7% (5)	<b>45.5% (10)</b>	22.7% (5)	4.5% (1)	22
window replacement	<b>50.0% (11)</b>	45.5% (10)	4.5% (1)	0.0% (0)	0.0% (0)	22
extension tied into roof	9.1% (2)	18.2% (4)	<b>40.9% (9)</b>	18.2% (4)	13.6% (3)	22
re-roofing	4.5% (1)	18.2% (4)	<b>45.5% (10)</b>	13.6% (3)	18.2% (4)	22
roof repairs	9.1% (2)	18.2% (4)	<b>54.5% (12)</b>	18.2% (4)	0.0% (0)	22
conservatory extension	31.8% (7)	<b>59.1% (13)</b>	9.1% (2)	0.0% (0)	0.0% (0)	22

**15. which of these possible development site FEATURES would indicate need for a bat survey? (please rate each between 'not at all' and 'definitely')**



	not at all	not likely	possibly(50:50)	probably	definitely	Response Count
woodland, conifer	2.1% (1)	27.7% (13)	<b>48.9% (23)</b>	12.8% (6)	8.5% (4)	47
woodland, deciduous	2.0% (1)	4.1% (2)	<b>34.7% (17)</b>	32.7% (16)	26.5% (13)	49
mature trees	2.0% (1)	2.0% (1)	24.5% (12)	<b>36.7% (18)</b>	34.7% (17)	49
pond, lake, reservoir	6.1% (3)	12.2% (6)	<b>34.7% (17)</b>	30.6% (15)	16.3% (8)	49
farm steadings	2.0% (1)	4.1% (2)	24.5% (12)	<b>36.7% (18)</b>	32.7% (16)	49
roofless buildings	8.2% (4)	36.7% (18)	<b>38.8% (19)</b>	16.3% (8)	0.0% (0)	49
hedges	2.1% (1)	31.3% (15)	<b>41.7% (20)</b>	12.5% (6)	12.5% (6)	48
bridge	2.0% (1)	6.1% (3)	<b>44.9% (22)</b>	26.5% (13)	20.4% (10)	49
historic building/structure	2.1% (1)	0.0% (0)	27.1% (13)	<b>47.9% (23)</b>	22.9% (11)	48
underground tunnel, cave, culvert etc	2.0% (1)	4.1% (2)	18.4% (9)	32.7% (16)	<b>42.9% (21)</b>	49
house, pre 1900	4.1% (2)	0.0% (0)	<b>34.7% (17)</b>	<b>34.7% (17)</b>	26.5% (13)	49
house, 1900 - 1950	6.3% (3)	2.1% (1)	<b>37.5% (18)</b>	33.3% (16)	20.8% (10)	48
house 1950 - 1970	6.4% (3)	8.5% (4)	<b>48.9% (23)</b>	27.7% (13)	8.5% (4)	47
house, post 1970	8.3% (4)	20.8% (10)	<b>41.7% (20)</b>	20.8% (10)	8.3% (4)	48
canal	10.4% (5)	12.5% (6)	<b>41.7% (20)</b>	22.9% (11)	12.5% (6)	48
street-lighting	14.9% (7)	<b>44.7% (21)</b>	25.5% (12)	12.8% (6)	2.1% (1)	47
river	10.4% (5)	10.4% (5)	<b>37.5% (18)</b>	27.1% (13)	14.6% (7)	48
moorland	10.6% (5)	34.0% (16)	<b>36.2% (17)</b>	17.0% (8)	2.1% (1)	47
rural location	6.3% (3)	4.2% (2)	<b>47.9% (23)</b>	31.3% (15)	10.4% (5)	48
urban location	6.3% (3)	14.6% (7)	<b>52.1% (25)</b>	22.9% (11)	4.2% (2)	48
sub-urban location	6.3% (3)	8.3% (4)	<b>47.9% (23)</b>	31.3% (15)	6.3% (3)	48
disused buildnig	2.1% (1)	0.0% (0)	31.3% (15)	<b>43.8% (21)</b>	22.9% (11)	48

shed/ outhouse/ garage	4.2% (2)	12.5% (6)	<b>45.8% (22)</b>	25.0% (12)	12.5% (6)	48
<b>answered question, 49    skipped question, 34</b>						

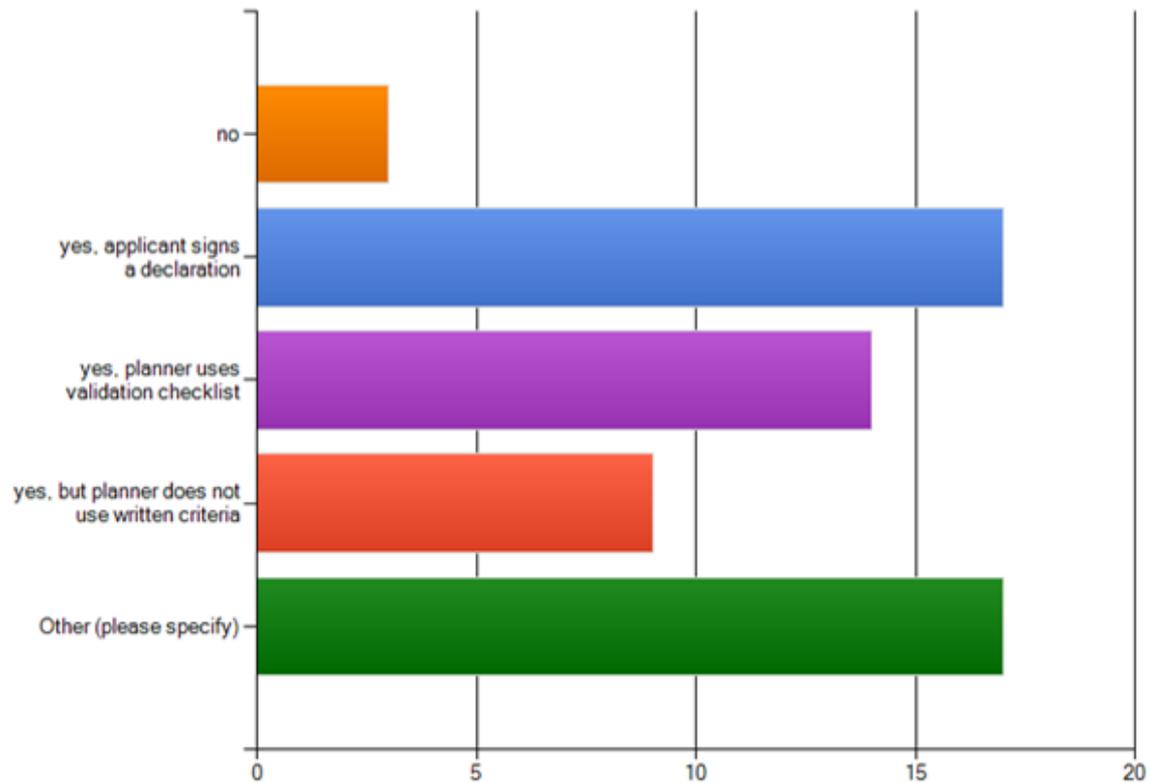
Looking at the responses by planners only we find a more cautious expression, with more not at all, unlikely and possibly responses. (file saved) notably roofless buildings, bridges

1. Depends what is being proposed and likelihood of disturbance
2. This question (and the previous one) is a bit simplistic. The need for survey would predominantly be dictated by the type of development proposed in combination with suitability of the affected habitat/feature for use by bats. For example, the re-roofing or demolition of a pre-1900 house located close to water/woods would DEFINITELY trigger the need for a survey. The same house would NOT be surveyed if minor alterations to features not considered suitable for bats was proposed. The ecologist should make a decision based on professional judgement, experience and best practice guidelines; on the other hand, a planner is only likely to identify issues when the details of a proposal replicate the examples provided in NE Standing Advice or other checklists i.e. some subtle impacts may be missed and so surveys not requested.
3. Bat survey likely to be part of wider ecological survey
4. no moorland or real urban areas in District
5. It's virtually impossible to comment on generalities, the context of the site and the development proposal would dictate just as much as any particular feature
6. Whilst I appreciate that hedges, ponds etc may provide feeding opportunities and these green links should be retained the current emphasis of my planning authority is on the nature of the building/tree which is the subject of the application.
7. Depends on the situation, plans, historical records etc.
8. All of the above have the potential to relate to bats and if I had an application with any of the above comment would be made with relation to bats in one form or another. Moorland is my only low level one but as moorland often has woodland and woodland = bats then I have to look at it as having potential for bats.
9. The "not at all" responses = CCW legal duty; "not likely" = in this area
10. site/development specific
11. It is difficult to generalise - it very often depends on the individual application site

**16. are either the applicant or the planner required to confirm the consideration of possible presence of / impact on bats? (please tick all that apply)**

answered question 48, skipped question 35

no	6.3%	3
yes, applicant signs a declaration	35.4%	17
yes, planner uses validation checklist	29.2%	14
yes, but planner does not use written criteria	18.8%	9
Other (please specify)	35.4%	17



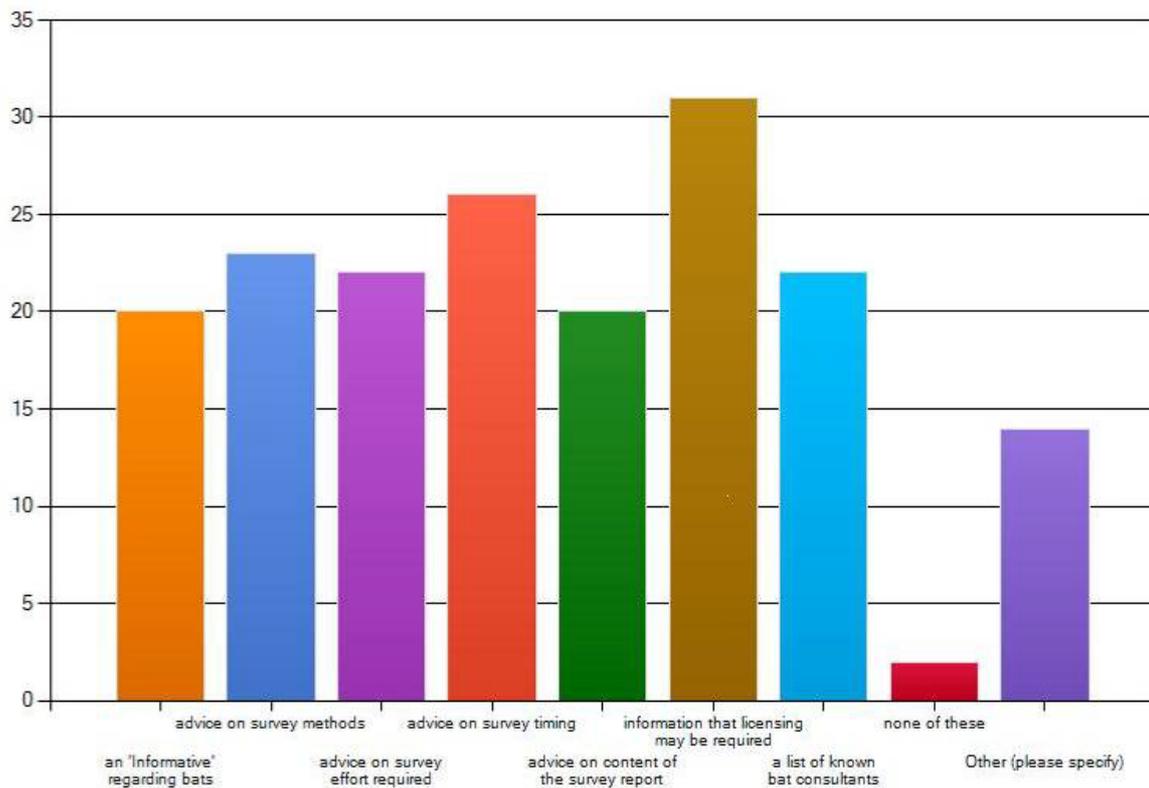
1. survey
2. This issue would be discussed by the officer in their report
3. As per application form
4. 'Protected species' as a whole are considered.
5. Applicant is supposed to sign the checklist but doesn't always happen... If bats are present, case officer should include paragraphs in their report detailing how the LPA has engaged and paid due regard to the Habs Regs
6. On certain IAPP forms protected species issues are addressed - the applicant would then sign the form
7. DC support use validation checklist.
8. question on application forms
9. everyone has to on standard application form q.14
10. Yes within the committee report
11. Included on I APP forms only at present, but not used to validate
12. records of consultation kept on file
13. i don't know what protocol the planning department uses

- This is one not black and white. Yes the applicant must show consideration for bats when asked but that is the point it is when asked therefor responsibility lies with DC officer to consider ecological matters and consult as required
- 14. This is one not black and white. Yes the applicant must show consideration for bats when asked but that is the point it is when asked therefor responsibility lies with DC officer to consider ecological matters and consult as required
  - 15. APPI is signed but usally wrong
  - 16. One app asks whether 'biodiversity' is an issue - often not completed or completed incorrectly
  - 17. a validation checklist will be used, but has not been agreed yet

**17. when need for a bat survey is triggered, are any of the following provided to the applicant? (please tick all that apply)**

answered question 48, skipped question 35

an 'Informative' regarding bats	41.7%	20
advice on survey methods	47.9%	23
advice on survey effort required	45.8%	22
advice on survey timing	54.2%	26
advice on content of the survey report	41.7%	20
information that licensing may be required	64.6%	31
a list of known bat consultants	45.8%	22
none of these	4.2%	2
Other (please specify)	29.2%	14



- 1 LPAs shouldn't provide a list of known bat consultants because this is prejudicial and could be deemed commercially disadvantageous to those consultants not on the list
- 2 I would make these recommendations if the case comes to me but i cannot comment on those cases which are not referred to me.
- 3 We request the survey is carried out before the application is submitted/ determined
- 4 Advice to contact Natural England for information and a link to the website which provides a list of known bat consultants
- 5 an "informative" would be put on a decision notices where it was felt that there might be bats present, but that there was not enough evidence that they were and that they would be affected by the development to justify asking for a survey

- 6 We aren't allowed to recommend consultants they are referred to BCT website and other relevant bodies
- 7 application not registered without it
- 8 We advise why a survey is required, that a suitably qualified ecologist should be engaged and that the ecologist should advise on the level of survey required / appropriate. We direct applicants to the IEEM directory to find ecologists. We inform them that good practice guidelines should be followed.
- 9 Protected Species Checklist for the Local Requirements points applicants to IEEM Guide to Ecological Impact Assessment website
- 10 App not registered without bat survey up front
- 11 We always request that a suitably qualified bat surveyor is used. She/he should know the above information.
- 12 General advice is given in my consultation, but usually kept brief as it is not up to me to provide too much detail as this would basically involve writing a survey spec for each case, and all cases are different. I would however always give brief advice on the use of appropriately qualified personnel, general pointers to survey effort and timing and info regarding the three tests
- 13 It's normally just specified by the ecologist (in the form of a letter to the planner) that surveys must be undertaken to best-practice guidelines by a suitably experienced professional ecologist or bat expert. The reasons why the survey is required and info re bat legislation/policy will also be provided in the consultation letter to the planner. I'm not sure how often this letter is passed on to the applicant.
- 14 not sure dealt with by LPAs

**18. where need for a bat survey is triggered, is it usually: (please tick one)**

conditioned in consent	4.2%	2
required prior to determination	83.3%	40
Other (please specify)	12.5%	6
<b>skipped question</b>	<b>35</b>	<b>answered question</b>
		<b>48</b>

- 1 unknown
- 2 varies between condition and prior not all are aware of the case below
- 3 prior to validation of application
- 4 It is required prior to determination, emphasised by planning policy and recent case law (e.g. Woolley)
- 5 I advise they ALWAYS (these days, anyway) be required prior to determination, by me anyway (so far, I don't think case officers in my districts have conditioned them since the Hants CC SLA has been in place)
- 6 Depends on how integral to application

**19. are you aware of "the Cornwall case" (R v Cornwall County Council ex parte Hardy & Gwennap Parish Council CO/4784/99. September 2000)?**

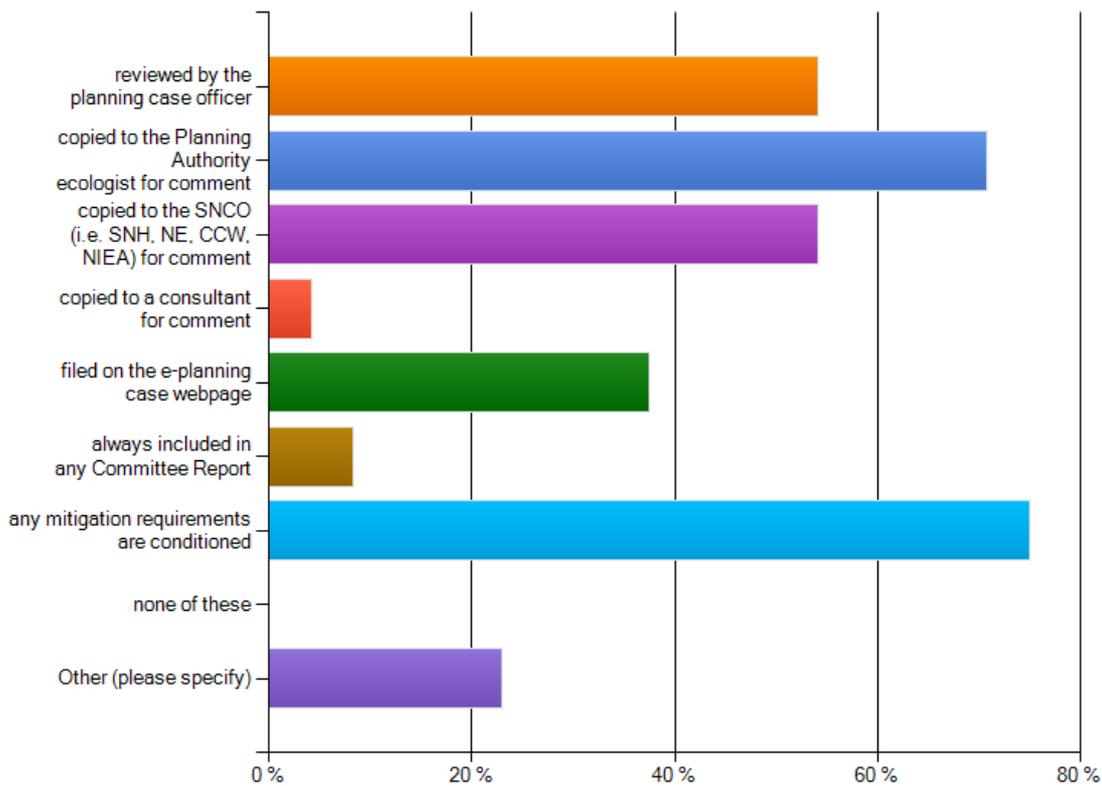
yes	56.3%	27
no	43.8%	21
<b>skipped question</b>	<b>35</b>	<b>answered question</b>
		<b>48</b>

**20. once a bat survey has been received, is it: (please tick all that apply)**

reviewed by the planning case officer	54.2%	26
copied to the Planning Authority ecologist for comment	70.8%	34
copied to the SNCO (i.e. SNH, NE, CCW, NIEA) for comment	54.2%	26
copied to a consultant for comment	4.2%	2
filed on the e-planning case webpage	37.5%	18

always included in any Committee Report	8.3%	4
any mitigation requirements are conditioned	75.0%	36
none of these	0.0%	0
Other (please specify)	22.9%	11
<b>answered question</b>	<b>48</b>	<b>skipped question</b>
		<b>35</b>

- If the mitigation requirements in the survey report aren't good enough, we request further information and/or make further recommendations of our own
- 1 As already mentioned there is no protocol so applications which could impact on bats could be missed. SNCO's do not pick up on some either!
  - 2 copied to the env strategy officer for comment
  - 3 don't know - i work for the SNCO
  - 4 If is referred to in the committee report
  - 5 surveys are not appended to committee reports but a summary of the findings and implications would be included
  - 6 Ecologist at local records office may comment, NE may comment where case officer is unsure
  - 7 Mitigation requirements are conditioned where they are appropriate and proportionate. The SNCO is consulted when major, controversial or difficult cases come in.
  - 8 This District does not have an ecologist but a general biodiversity advisor
  - 9 NE will no longer comment on protected species
  - 10 passed to trees and environment team (not formally trained as ecologists)



**21. do you believe that bats are a "material consideration" for these applications: (please tick one per row) answered 46, skipped 37**

	yes	no	not sure	Response Count
full planning application	95.7% (44)	0.0% (0)	4.3% (2)	46
outline planning application	89.1% (41)	0.0% (0)	10.9% (5)	46

listed building consent	<b>65.2% (30)</b>	13.0% (6)	21.7% (10)	46
change of use	<b>81.8% (36)</b>	2.3% (1)	15.9% (7)	44
demolition warrant	<b>68.2% (30)</b>	4.5% (2)	27.3% (12)	44
reserved matters	<b>75.0% (33)</b>	4.5% (2)	20.5% (9)	44
agricultural prior notice	<b>40.0% (18)</b>	22.2% (10)	37.8% (17)	45
conservation area consent	<b>53.3% (24)</b>	8.9% (4)	37.8% (17)	45

## 22. what additional information, guidance, or training would be helpful in making this decision process easier for you?

- 1 Validation checklist that is useable. Most would result in a an unworkable number of applications needing a survey. There is no capacity to do this by the number of bat workers available.
- 2 Training on the kind of buildings/features that bats will use, survey techniques/requirements etc.
- 3 The current process within the section, screening of applications by the ecologist, provides an informative screening process. A checklist (e.g. does extension affect roof) for DC officers with regard to potential impact could be useful, however other checks - Sewbrec provide a good **sauce** (sic).
- 4 Listed building consents cannot condition actions therefore cannot require a bat survey as a consequence of an LBC. The applicants need to be appraised of their legal responsibilities towards bats under WACA 1981 and Habs Regs but these don't affect LBCs. Therefore any bat issues thrown up by an LBC need to be dealt with additionally, not within the LBC.
- 5 It is not the decision making process which is the problem for me, it is the lack of protocol, work-flow, resources (finance, staff and time) and officer responsibility. Our planners do not take on their responsibilities seriously enough.
- 6 it would be helpful to bring together staff from different departments by having a standardised protocol for how to respond to planning applications which may impact upon bats (and other species)
- 7 Each LPA to have it's own ecologist, and each LPA to have a clear protocol.  
These answers may not be strictly relevant , coming from an SNCO - but I hope they help in some way...
- 8 One main limitations in Wales is the lack of Bat Surveyors to meet demand.
- 9 We have a training session scheduled with Natural England in a weeks time!
- 10 much more awareness in day to day, easy guidance notes for busy officers  
a big sticker for all planning officers to wear on their foreheads saying "bats matter!"  
more publicity on the perils of ignoring NERC  
more courage to request suveys even if this will delay development  
support from managers and councillors for the need for proper consideration of issues
- 11 a course on bats
- 12 Having previously had an ecologist working for the department and being ecologically minded I would hope that we are more aware even if we don't offer advice. There appears to be some confusion as to whether or not bats are a material consideration in listed building and conservation area applications
- 13 I think (an appologies if I'm wrong) that you have confused an element of building control with planning. As I understand it a "demolition warrant" is a requirement of Scottish Building regulations, not planning. If a building is not listed nor on "article 1 (5) land" (i.e. in a conservation area) planning permission is not required for demolition. As planners we therefore have no control over this.
- 14 We have had a number of recent improvements to the mechanisms by which we deal with bats in the planning application process and the guidance available to both planners and developers. We could benefit from comprehensive training on how to use the guidance and technology to the best effect. We would also benefit from the expertise of an in house ecologist.
- 15 The criteria being used by the Tyne & Wear Planning Authorities to decide which buildings require bat surveys is based on a document produced by ALGE entitled 'Validation of Planning Applications', which itself uses criteria based on the Durham Bat Group Criteria and the Bat Mitigation Guidelines. In my view as a licensed bat worker, the existing criteria seems biased towards species other than pipistrelle species, as buildings newer than 1960 are not considered unless they have hanging tiles or cladding. In addition, I think it highly likely that bats will choose roosting sites differently in urban areas where buildings are plentiful.

In response to this, we are currently carrying out a research project to investigate these issues. The aim of this project is to analyse all existing information on bat roosts in the County Durham area to inform a review of the existing criteria to ensure it is as robust as possible. The overall objective is to conserve bat roosts by ensuring the correct criteria is used when determining whether bat surveys are required for all aspects of Local Authority work (planning, building maintenance, demolitions etc).

The information collected on all roost report forms held by Durham Bat Group have been inputted into a database. The roosts have then been mapped using GIS and will be analysed in conjunction with aerial photographs and historic maps etc to measure things like distance to foraging habitat, age of building etc. The database can also be interrogated and various elements analysed such as the aspect of roost, type of building etc.

I am hopeful that this research will lead to more accurate criteria being used to trigger surveys for bats in the area.

- 16 help with when one is required
- 17 Clarification from Government on how to discharge NERC and Habs Regs duties when dealing with Listed Building applications, Conservation Area Consents and Demolition Warrants.  
Clarification from NE or Government on many issues relating to protected species and planning!
- 18 Q21 is not a yes/no answer it depends on the specifics of the case. If bats are found on site and the proposal will severely disturb their roost then it is a material consideration.  
I think a formalised screening process would be of help because I'm sure we are not as consistent as we should be in requesting bat surveys.  
Published advice about the screening process, the bat survey, mitigation measures and licensing would also help us and the applicant/ agent preparing a submission. It would reduce the number of applicants having to withdraw and resubmit and the number of applications going over the determination period. It would also help the SNH officer who probably gets asked too often for fairly standard advice.
- 19 re above question, bats can be a material consideration in any application when there is reasonable likelihood that they are present  
Would be useful to have national standard guidance regarding when bat information should be required, as particularly for householder applications there is the problem that it is often felt unreasonable for householders to provide bat surveys for any application.
- 20 Guidance on the application of the three tests in the Habitats Regulations (following the East Cheshire / Woolley judicial review)
- 21 Enough time and training to be able to produce more formal guidance for planning case officers
- 22 We already do lots of training in Dorset on biodiversity for planners, registration clerks, etc., and held a workshop on the bat protocol for consultants. We will do this yearly.  
Am happy if you want further information on Dorset Bat Protocol.  
Sorry haven't answered all your questions, but we have no jurisdiction over district/borough planning authorities.  
The agreement we have is for bats only.
- 23 I think the issue is fairly straight forward. Protected species are a material consideration at all times. I think a "demolition warrant" must be a building control not a development control issue. Unless a building is listed or in a Conservation Area you do not need planning permission for demolition. I cannot comment on whether bats would be a material consideration in the building control process as this is not my area of expertise.
- 24 Better training for agents and applicants to understand the material importance for protected species and their habitats.
- 25 More clarity in our legal responsibilities in relation to planning. No one seems clear when it is and isn't appropriate to ask for a bat survey and the level of bat survey work. This seems to lead to a very cautious approach to this issue, for fear of doing something unlawful, which in turn makes it very difficult to agree on appropriate guidance without coming up with something that will make the planning system grind to a halt and cause applicants considerable delay and expense- something that is of particular concern in relation to householders and smaller developers.

## Appendix 6

### Results of Survey Monkey questionnaire

#### Bat Consultants' experience of the outcomes of LPA screening of planning applications for bats

Responses Summary, 'Bat Consultants Questionnaire 270409', downloaded 3 December 09  
 Total Started Survey: , 81, Total Completed Survey: , 53 (65.4%)

**Q.1. For each of the last three years, please answer the following questions: (please complete for at least one year, but all 3 years if you can!)**

	2008													Response Count	
	zero	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-35	36-40		40+
how many development sites you surveyed for bats	2.7% (2)	12.0% (9)	20.0% (15)	5.3% (4)	10.7% (8)	10.7% (8)	5.3% (4)	8.0% (6)	1.3% (1)	2.7% (2)	2.7% (2)	0.0% (0)	0.0% (0)	18.7% (14)	75
how many sites had roosting bats	5.7% (4)	50.0% (35)	11.4% (8)	12.9% (9)	2.9% (2)	4.3% (3)	0.0% (0)	4.3% (3)	1.4% (1)	1.4% (1)	0.0% (0)	1.4% (1)	2.9% (2)	1.4% (1)	70
how many sites ONLY had foraging or commuting bats	7.2% (5)	33.3% (23)	17.4% (12)	14.5% (10)	8.7% (6)	4.3% (3)	2.9% (2)	2.9% (2)	0.0% (0)	2.9% (2)	0.0% (0)	1.4% (1)	0.0% (0)	4.3% (3)	69
how many sites had no evidence of bats at all	33.3% (23)	46.4% (32)	7.2% (5)	1.4% (1)	4.3% (3)	1.4% (1)	1.4% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.4% (1)	2.9% (2)	69
how many sites had no visible sign of bats BUT further survey work later found bat roost(s) at how many sites has survey failed to show a bat roost AT ALL, but then bats were found during development works?	57.4% (39)	25.0% (17)	7.4% (5)	5.9% (4)	1.5% (1)	0.0% (0)	1.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.5% (1)	0.0% (0)	0.0% (0)	68
at how many sites was bat sign visible BUT survey failed to show ACTIVE use by bats	42.0% (29)	40.6% (28)	13.0% (9)	1.4% (1)	1.4% (1)	1.4% (1)	0.0% (0)	69							

	2007													Response Count	
	zero	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-35	36-40		40+
how many development sites have you surveyed for bats	11.8% (8)	14.7% (10)	10.3% (7)	13.2% (9)	11.8% (8)	5.9% (4)	8.8% (6)	7.4% (5)	0.0% (0)	0.0% (0)	4.4% (3)	0.0% (0)	0.0% (0)	11.8% (8)	68
how many sites had roosting bats	25.0% (15)	40.0% (24)	20.0% (12)	5.0% (3)	1.7% (1)	0.0% (0)	0.0% (0)	1.7% (1)	0.0% (0)	3.3% (2)	0.0% (0)	0.0% (0)	3.3% (2)	0.0% (0)	60
how many sites ONLY had foraging or commuting bats	8.3% (5)	33.3% (20)	15.0% (9)	13.3% (8)	8.3% (5)	11.7% (7)	0.0% (0)	1.7% (1)	1.7% (1)	5.0% (3)	0.0% (0)	1.7% (1)	0.0% (0)	0.0% (0)	60
how many sites had no evidence of bats at all	42.4% (25)	45.8% (27)	3.4% (2)	1.7% (1)	1.7% (1)	0.0% (0)	1.7% (1)	1.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.7% (1)	59
how many sites had no visible sign of bats BUT further survey work later found bat roost(s) at how many sites has survey failed to show a bat roost AT ALL, but then bats were found during development works?	63.8% (37)	22.4% (13)	10.3% (6)	0.0% (0)	1.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	1.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	58
at how many sites was bat sign visible BUT survey failed to show ACTIVE use by bats	94.9% (56)	5.1% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	59
at how many sites was bat sign visible BUT survey failed to show ACTIVE use by bats	55.2% (32)	32.8% (19)	6.9% (4)	3.4% (2)	1.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	58

	2006														Response Count
	zero	1-3	4-6	7-9	10- 12	13- 15	16- 18	19- 21	22- 24	25- 27	28- 30	31- 35	36- 40	40+	
how many development sites have you surveyed for bats	21.2% (14)	18.2% (12)	9.1% (6)	13.6% (9)	6.1% (4)	1.5% (1)	3.0% (2)	3.0% (2)	3.0% (2)	0.0% (0)	4.5% (3)	3.0% (2)	0.0% (0)	13.6% (9)	66
how many sites had roosting bats	29.1% (16)	34.5% (19)	18.2% (10)	3.6% (2)	5.5% (3)	0.0% (0)	0.0% (0)	1.8% (1)	0.0% (0)	3.6% (2)	0.0% (0)	0.0% (0)	3.6% (2)	0.0% (0)	55
how many sites ONLY had foraging or commuting bats	20.0% (11)	38.2% (21)	12.7% (7)	9.1% (5)	1.8% (1)	5.5% (3)	1.8% (1)	1.8% (1)	1.8% (1)	3.6% (2)	0.0% (0)	1.8% (1)	0.0% (0)	1.8% (1)	55
how many sites had no evidence of bats at all	51.9% (28)	33.3% (18)	1.9% (1)	3.7% (2)	1.9% (1)	1.9% (1)	1.9% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.7% (2)	54
how many sites had no visible sign of bats BUT further bat survey work later found bat roost(s)	62.3% (33)	22.6% (12)	7.5% (4)	1.9% (1)	5.7% (3)	0.0% (0)	53								
at how many sites has survey failed to show a bat roost AT ALL, but then bats were found during development works?	87.0% (47)	11.1% (6)	0.0% (0)	1.9% (1)	0.0% (0)	54									
at how many sites was bat sign visible BUT survey failed to show ACTIVE use by bats	64.2% (34)	24.5% (13)	7.5% (4)	1.9% (1)	0.0% (0)	0.0% (0)	1.9% (1)	0.0% (0)	53						
<b>answered question</b>	<b>77,</b>														
<b>skipped question</b>	<b>4</b>														

**2. what appeared to be the key features that made sites suitable for roosting bats?**

answered question, 64, skipped question, 17 and 7 garbage = **57 valid responses**

- 1 niches/apertures combined with available foraging/commuting routes
- 2 Variety of locations for roosting  
Presence of good connectivity or suitable foraging habitat either in immediate surroundings or wider surrounding area.
- 3 proximity of decent foraging habitat - even in town centre sites  
undisturbed buildings were more likely to have bat roosts, but roosts also present in buildings occupied during the day for low-disturbance purposes (further education)  
presence of fascia boards/soffits accessible to bats
- 4 We undertake Bat Roost Potential (BRP) Surveys which match a list of criteria to building features. In our experience damaged bargeboards and soffits were the features common at sites with roosts. Also of particular importance was good quality foraging habitat in the surrounding area.
- 5 Accessibility.  
Surrounding habitat.  
Slate, pitched roof.  
Older timbers.  
Closed roof with good temperature regulation.
- 6 adjacent habitat & abundance of suitable roost features within built structures and/or trees
- 7 Usually a built structure with a reasonably intact roof and good habitat links, which covers most sites in Wales.
- 8 Building structure material and design.  
A long length of time for being undisturbed.
- 9 older, less disturbed, good habitat (except pips!)
- 10 Combination. Space, heat, safety, flight-lines.
- 11 Water and trees/hedgerows for foraging and commuting.
- 12 No key features.  
Key factors is the open approach required by the surveyor - the unexpected is the norm.
- 13 Suitable buildings with foraging opportunities nearby
- 14 0 (sic)
- 15 Surrounding habitat features such as woodlands, tree lines and waterbodies
- 16 warm location trees and buildings
- 17 Barns (beams, lack of lighting etc).  
Large lofts - warm, large internal flying area.
- 18 Fgbnfgb (sic)
- 19 In an area with lots of cover, trees and/or water nearby, suitable roosting places and access places available, variety of roosting places available, undisturbed sites.
- 20 Lead flashing, loose tiles, cracks in stonework, pitched roofs, two storey

- 21** Major roosts have been in older buildings.
- 22** quality of surrounding habitat for foraging habitat  
number and types of potential roosting cavities
- 23** It is difficult to say what are the key features for roosting bats, as all the different species have different, and often specific, roosting requirements, yes buildings with large loft spaces and old roofs/hanging tiles are more likely to have bats but the best key features are locality. Isolated buildings in rural locations near good foraging habitat are much more likely to have bats present, even if the building is not ideal for bats, than an apparently ideal building in an area that is not good for bats.
- 24** Large, open roof voids  
Wooden beams present, usually with a central ridge beam  
Crevices between stones/bricks  
Cavity wall  
Heat sources e.g. boiler  
Trees/shrubs often in close proximity
- 25** Trees and hedges surrounding the buildings;  
Warm, quiet and non-draughty roof spaces - mostly occupied by humans;  
Timber framed roofs;  
Slates/tile roofs underlining
- 26** Surrounding habitat, i.e. woodlands, rivers. Old buildings with slates, gaps under flashing etc.
- 27** Location - age of building and design obviously have an effect, but the location seems to be the prime consideration. Numerous examples of bats appearing in new houses, asbestos roofs etc, because they only need a small part to be accessible/suitable.
- 28** Close proximity to good foraging and commuting habitat.
- 29** j (sic)
- 30** x (sic)
- 31** x (sic)
- 32** - under guttering in eaves, high up, clear entrance free from clutter, south facing, in optimal foraging areas  
- all year round use potential  
- in old bridges where lime mortar has fallen out - usually in spans greater than 1.5m from river/burn substrate
- 33** This has been reviewed already for the different species of bat.  
I don't think my own sample size is enough to draw any conclusions.
- 34** roof design, occupied, good surrounding vegetation, aspect of building
- 35** Generally older buildings in rural settings
- 36** Habitat connectivity, construction design opportunities (e.g. cavity wall, gaps under eaves/window frames), low lighting, low levels of disturbance (in many cases)
- 37** Entry holes in buildings/trees and connectivity of habitats
- 38** dun (sic)
- 39** Numerous - the BCT Guideline definitions certainly appear to be a fair reflection, however we have also had roosts in unexpected scenarios

- 40 Cavity walls, slipped/broken roof or hanging tiles, adjacent to suitable foraging area.
- 41 lack of maintenance on buildings, general "oldness" perhaps?
- 42 Temperature, lack of disturbance, access to good foraging areas
- 43 Ecological connectivity, low levels of disturbance, roost features such as hanging tiles or access to insulated roof spaces in buildings
- 44 Quality of surrounding habitat
- 45 Presence of trees and scrub, especially where these are mature and where the vegetation ties in with other landscape features, esp. river/loch, woodland etc.
- 46 Surrounding habitat is key. They will roost in buildings that have trees/ hedgerows/ shrubs within the near vicinity, and tend to avoid areas of extensive terraced houses where there are no green spaces or trees/ waterways to provide commuting to favourable foraging areas. The age of the building does not seem to deter bats so long as they are accessible, dry, draught free and offer the structure that the different species prefer.
- 47 building/ tree/ feature aspect, area of country, area of county, consistent temperature, presence of other local roosts, presence of good foraging
- 48 age of building, structure (hanging tiles, complex roof) and surrounding habitat mosaic
- 49 Large numbers of cavities in dilapidated buildings and/or undisturbed loft area. Also some inaccessible locations such as large chimneys.
- 50 Older building design/construction methods: gaps in fascias, soffits, raised tiles  
Derelict buildings with open door/window access to sheltered day/night roosts inside buildings  
Quality and connectivity of surrounding landscape (not just linear features adjacent to buildings)  
Retention of farmland trees (hedgerows, copses) and therefore roost sites
- 51 wooded river corridor and good commuting links  
good foraging habitat (i.e. sewage works) within close proximity
- 52 Depends on the species, but other than that then proximity to suitable habitat is important - very few roosts found in urban or suburban situations. Lack of disturbance probably also key - e.g. buildings where lofts had little or no regular use, or barns that were not actively used.
- 53 Suitable built form or mature trees.
- 54 Proximity to good foraging habitat  
Well connected landscape  
Dark, warm, undisturbed spaces
- 55 NA
- 56 cavities, roof structure, location, materials
- 57 Building type and design and location close to suitable habitat. A building could be perfect in design and construction but very isolated therefore no bats were found.
- 58 Ridge access; access to top of walls (wall plate); areas between bitumen felt and slates/tiles or wooden sarking and slates; gaps between roof timbers; alongside the ridge board; on top of the ridge board;
- 59 Cracks in stonework/gaps between stones at an old barn  
Very small gaps between slates/cracks in chimney breast at a farmhouse  
gaps between joists that were clad in loose roofing felt at a substation  
gaps between chipboard and glass of boarded up windows at an old office building

- All had good foraging habitat within 50m
- 60** Gaps in brickwork.  
Corrugated asbestos sheeting.  
Internal roof voids.
- 61** Good old trees and suitable habitat such as watercourses. Cliff faces and rock scree should not be overlooked as there were signs on these areas particularly where the sites are remote, eg windfarms in the highlands but it can very difficult finding roosts on remote sites like this and they may not always be found as they are adjacent to the development area. Old buildings, bridges and possibly large walls where sheltered used on some occasions but depends on the site.
- 62** Gaps in roof voids and building facias/soffits. Being located in a non urban area in good habitat.
- 63** Habitat features (e.g. water boides nearby providing water availability), habitat connectivity (i.e. hedgerows & tree lines) & structural features on development projects (i.e. niches within the building suitable for different bat spp.).
- 64** Old stone buildings, especially farms, closeness to woodland, slate roofs

**3. what have been the most significant roosts (i.e. rarer species; or large population numbers, locally or nationally) that you have found during development surveys?**

answered question, 64, skipped question, 17

- 1** Natterers - maternity roost 200+
- 2** Mainly small occasional use by common and widespread species only ever found.  
Small maternity roosts most significant.
- 3** 25+ lesser horseshoe bats at a disused healthcare facility in north wales due to be demolished to extend a car park
- 4** Bandit (common) pip roost with 300 individuals
- 5** None; all relatively common species (pips/BLE/Natterer's/Daubenton's)
- 6** very large spring roost of an uncommon species - national importance  
maternity roosts of more common species - local importance
- 7** Natterer's and lesser horseshoe maternity colonies.
- 8** No rare species - not many occupy buildings that have to be surveyed for planning developments.
- 9** 1 x Barbastelle (first building roost in Wales - single bat only seen)  
Numerous lesser and greater Horseshoe sites (mostly low numbers though)  
A myotis swarming site found in a mine whilst surveying for a windfarm.
- 10** All standard (common pip, BLE)
- 11** No particularly 'significant' roosts found.
- 12** 2004: discovered a possible mixed roost of Soprano & Natterer's bats. Both emerged from the same entrance - one night count estimated to be ~150 individuals. Roost was inside stone wall.  
Same site had 4 (most probably all 5) Scottish species roosting.
- 13** 1. small roosts of 5-10 45 pips in croft houses on east coast of Lewis  
2. small roosts of 10-15 45 pips in houses on north Sutherland coast, inc. foraging along sea cliffs

3. roost of 150 45 pips in large old house near Thurso
- 14 0 (sic)
- 15 Brown Long eared roosts with 15-20 individuals
- 16 barbastelle adult female colony population 120 /  
bechstein adult female colony population 120
- 17 None.  
But prior to 2006 found a large maternity roost (with young) of BLEBs.
- 18 hnnnnnh (sic)
- 19 Natterer's tree roost (not many records of these in the county);  
large BLE roosts,  
sites with 3+ species.
- 20 maternity roost of lesser horseshoes
- 21 Majority of bat work has been monitoring lesser horseshoe populations in an SAC where a study into road widening options is ongoing.
- 22 lesser horseshoe roosts
- 23 The most common speceis i find maternity roosts of in building development where i am is Brown Long eared bats. However for non building developments i have been involved in i have found Bechsteins maternity roosts and Barbastelles. I have also found a male barbastelle bat in a building to be developed on two seperate occasions.
- 24 Maternity roosts of (locally) large numbers of brown long-eared and pipistrelle bats  
Winter roost of a small number of brown long-eared bats
- 25 Lesser horseshoe bat feeding roost
- 26 Residential buildings with large numbers of Soprano Pipistrelles
- 27 Most significant tend to be rarer species and those with a wider range of species - ie more than one spp.  
Most of the roosts identified were used by only one or two individuals, often as a transitional roost or non breeding summer roost.
- 28 Generally, I've only found common and widespread species.
- 29 j (sic)
- 30 x (sic)
- 31 x (sic)
- 32 - no really significant roosts, mostly bachelor soprano pip roosts or daubs in bridges, small numbers and one all year round roost
- 33 600+ P. pygmaeus  
Found nothing rare.
- 34 population numbers
- 35 Small soprano pipistrelle maternity roost (~50 bats)
- 36 maternity roosts with 180+ animals
- 37 Only found single BLEs or pips roosting

- 38** Dun (sic)
- 39** Natterer's roosts - a number of sites with a small amount of bats roosting in a location  
Whiskered roost - Dumfries & Galloway - c.20 bats present - no development involved - site audit  
Others fall into pipistrelle (Bandit & Soprano), Daubenton's, Brown long-eared, Noctule
- 40** ~150 common pipistrelles roosting in a building that another consultant had categorised as unsuitable; lesser horseshoe roost in a WW2 pill box adjacent to a rail line.
- 41** only ever found pips in roosts
- 42** Generally common species, some maternity roosts, often low numbers
- 43** Brown long-eared (numbers) common and soprano pipistrelles (frequency of low numbers of roosting bats)
- 44** 400+ Pipistrelle maternity roost  
Occasional night roost for 2-3 Lesser horseshoes
- 45** Large Daubenton's bat roost (100+bats) in Scotland;  
lesser horseshoe bat roosts under a road bridge in Wales.
- 46** The most significant roosts have been in rural low populated areas in stone built structures over 300 years old that have roofs in a decent state of repair. Within the near vicinity have been mature broadleaved trees/ woodland areas, rivers and open pasture.
- 47** BLE  
45 pip  
400+ known LHS roost in Wales.
- 48** roosts have been small, typically occasional use by a few bats
- 49** Nothing very significant. One site found did have four bat species present but in small numbers
- 50** Annex 2 spp: have found lesser horseshoe maternity roosts, but not in past 2 years, and non-breeding roosts of greater horseshoe and barbastelle. Also maternity roosts of brown long-eared, pipistrelle spp., Myotis spp, noctule. Majority of roosts found are non-breeding roosts with small nos. even during breeding season.
- 51** moderate numbers of common pipistrelle, maternity roost
- 52** 1 20+ BLEs  
2 combination of small numbers of species including Natterer's and lesser horseshoes, the latter being rare in the county (Warwickshire)  
3 20+ soprano pips
- 53** Nationally significant GH and LH roost at one site (several years ago). More recently, regionally significant barbastelle roost in Northants.  
Locally significant long-eared and 55 pip roosts at several sites.  
Regionally significant mixed species assemblage at one site.
- 54** Common pipistrelle maternity  
Brown long-eared maternity  
Lesser horseshoe hibernaculum (14 bats)
- 55** NA
- 56** 90 BLE maternity roost;  
combined 40 CP and 45 BLE roost in one roof;

Leislars bat new record for district;

Nathusius, new record for county

- 57** Hospital in Inverness. 28 separate roosts (15 Common Pipistrelle & 13 Brown Long-Eared) across the site with most in large main building. Roosts varied from maternity 100 plus bats to small 1-2 bat temporary roosts.
- 58** 100+ maternity sites for lesser horseshoe bats
- 59** The same boarded up window of the old office building listed above only had small nos. of pips, but interestingly the window was being used year-round - ie winter hibernaculum; spring transitional; summer; and autumn transitional. I have not seen this before.
- 60** 130 pipistrelle (45) maternity roost.
- 61** No large roosts because most were upland sites.  
Daubentons found on rivers and in adjacent caves and buildings but that's all.  
Probably missed roosts in dense woodland but where this is not impacted by access roads or other development we probably never looked.
- 62** Maternity roosts of common species (around 100+ common pipistrelle)
- 63** None between 2006 - 2007. Most roost I've come across this year (2009) have been Pipistrelle (Common & Soprano) & Brown Long-Eared.  
One of the Pipistrelle roosts was a maternity with c.150 bats.
- 64** Two Natterer's maternity roosts

#### 4. How many roosts of the following species were found?

	2008														Response Count
	zero	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-35	36-40	40+	
serotine	93.8% (30)	6.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	32
horseshoe, greater	87.5% (28)	12.5% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	32
horseshoe, lesser	62.9% (22)	31.4% (11)	2.9% (1)	2.9% (1)	0.0% (0)	35									
barbastelle	90.9% (30)	6.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	33
pipistrelle, Nathusius'	90.6% (29)	9.4% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	32
long-eared bat, grey	96.9% (31)	3.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	32
Bechstein's bat	93.9% (31)	3.0% (1)	3.0% (1)	0.0% (0)	33										
Myotis (species not confirmed)	58.8% (20)	29.4% (10)	2.9% (1)	2.9% (1)	5.9% (2)	0.0% (0)	34								
Natterer's bat	54.3% (19)	34.3% (12)	2.9% (1)	2.9% (1)	5.7% (2)	0.0% (0)	35								
Daubenton's bat	66.7% (24)	33.3% (12)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	36
whiskered/ Brandt's bat	70.6% (24)	29.4% (10)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	34
long-eared bat, brown	19.1% (9)	44.7% (21)	21.3% (10)	2.1% (1)	2.1% (1)	8.5% (4)	2.1% (1)	0.0% (0)	47						
pipistrelle, soprano	31.7% (13)	34.1% (14)	17.1% (7)	7.3% (3)	2.4% (1)	0.0% (0)	2.4% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.4% (1)	0.0% (0)	2.4% (1)	0.0% (0)	41
pipistrelle, common	13.3% (6)	42.2% (19)	20.0% (9)	8.9% (4)	2.2% (1)	4.4% (2)	4.4% (2)	2.2% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.2% (1)	45

pipistrelle sp.	30.8% (12)	35.9% (14)	10.3% (4)	7.7% (3)	5.1% (2)	2.6% (1)	2.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.6% (1)	0.0% (0)	0.0% (0)	2.6% (1)	39
noctule	90.9% (30)	9.1% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	33
Leisler's bat	93.8% (30)	6.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	32
species not confirmed	77.4% (24)	19.4% (6)	0.0% (0)	0.0% (0)	3.2% (1)	0.0% (0)	31								

## 2007

	zero	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-35	36-40	40+	Response Count
serotine	89.3% (25)	10.7% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	28
horseshoe, greater	82.1% (23)	17.9% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	28
horseshoe, lesser	64.5% (20)	19.4% (6)	16.1% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	31
barbastelle	90.0% (27)	3.3% (1)	3.3% (1)	3.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	30
pipistrelle, Nathusius'	93.1% (27)	6.9% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	29
long-eared bat, grey	93.3% (28)	6.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	30
Bechstein's bat	93.1% (27)	3.4% (1)	0.0% (0)	3.4% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	29
Myotis (species not confirmed)	71.4% (20)	25.0% (7)	0.0% (0)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	28
Natterer's bat	58.1% (18)	22.6% (7)	12.9% (4)	3.2% (1)	3.2% (1)	0.0% (0)	31								
Daubenton's bat	74.2% (23)	25.8% (8)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	31
whiskered/ Brandt's bat	78.6% (22)	17.9% (5)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	28
long-eared bat, brown	21.6% (8)	45.9% (17)	13.5% (5)	10.8% (4)	2.7% (1)	0.0% (0)	2.7% (1)	2.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	37
pipistrelle, soprano	46.7% (14)	23.3% (7)	13.3% (4)	3.3% (1)	0.0% (0)	3.3% (1)	3.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.3% (1)	3.3% (1)	0.0% (0)	30
pipistrelle, common	16.7% (6)	41.7% (15)	16.7% (6)	2.8% (1)	11.1% (4)	5.6% (2)	0.0% (0)	2.8% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.8% (1)	36
pipistrelle sp.	42.4% (14)	27.3% (9)	15.2% (5)	3.0% (1)	3.0% (1)	3.0% (1)	3.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.0% (1)	33
noctule	90.0% (27)	10.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	30
Leisler's bat	96.4% (27)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	28
species not confirmed	76.9% (20)	23.1% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	26

## 2006

	zero	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-35	36-40	40+	Response Count
serotine	84.6% (22)	15.4% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	26
horseshoe, greater	92.3% (24)	7.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	26
horseshoe, lesser	60.7% (17)	25.0% (7)	14.3% (4)	0.0% (0)	28										
barbastelle	85.7% (24)	7.1% (2)	3.6% (1)	0.0% (0)	3.6% (1)	0.0% (0)	28								

pipistrelle, Nathusius'	100.0% (27)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	27
long-eared bat, grey	92.6% (25)	3.7% (1)	3.7% (1)	0.0% (0)	27										
Bechstein's bat	92.6% (25)	0.0% (0)	3.7% (1)	0.0% (0)	0.0% (0)	3.7% (1)	0.0% (0)	27							
Myotis (species not confirmed)	73.1% (19)	23.1% (6)	0.0% (0)	0.0% (0)	3.8% (1)	0.0% (0)	26								
Natterer's bat	51.9% (14)	33.3% (9)	7.4% (2)	0.0% (0)	3.7% (1)	3.7% (1)	0.0% (0)	27							
Daubenton's bat	63.3% (19)	36.7% (11)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	30
whiskered/ Brandt's bat	70.4% (19)	25.9% (7)	0.0% (0)	3.7% (1)	0.0% (0)	27									
long-eared bat, brown	39.4% (13)	27.3% (9)	18.2% (6)	6.1% (2)	3.0% (1)	6.1% (2)	0.0% (0)	33							
pipistrelle, soprano	43.3% (13)	36.7% (11)	6.7% (2)	0.0% (0)	3.3% (1)	3.3% (1)	0.0% (0)	3.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.3% (1)	0.0% (0)	30
pipistrelle, common	33.3% (11)	27.3% (9)	21.2% (7)	6.1% (2)	3.0% (1)	3.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.0% (1)	33
pipistrelle sp.	55.2% (16)	20.7% (6)	3.4% (1)	6.9% (2)	3.4% (1)	3.4% (1)	0.0% (0)	0.0% (0)	3.4% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.4% (1)	29
noctule	88.9% (24)	11.1% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	27
Leisler's bat	92.3% (24)	7.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	26
species not confirmed	84.0% (21)	16.0% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	25

answered question, 53, skipped question, 28

**5. Of the roosts found, please indicate the number in each category:****answered question, 52, skipped question, 29**

		2008													Response Count
	zero	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-35	36-40	40+	
maternity	19.6% (9)	<b>54.3%</b> (25)	10.9% (5)	2.2% (1)	0.0% (0)	0.0% (0)	4.3% (2)	0.0% (0)	2.2% (1)	0.0% (0)	2.2% (1)	0.0% (0)	0.0% (0)	4.3% (2)	46
mating	39.4% (13)	<b>48.5%</b> (16)	6.1% (2)	0.0% (0)	6.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	33
hibernation	48.6% (17)	<b>40.0%</b> (14)	8.6% (3)	0.0% (0)	2.9% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	35
transition	27.8% (10)	<b>47.2%</b> (17)	8.3% (3)	2.8% (1)	5.6% (2)	2.8% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	5.6% (2)	0.0% (0)	0.0% (0)	0.0% (0)	36
minor	7.1% (3)	<b>40.5%</b> (17)	26.2% (11)	9.5% (4)	2.4% (1)	2.4% (1)	2.4% (1)	2.4% (1)	0.0% (0)	0.0% (0)	2.4% (1)	0.0% (0)	2.4% (1)	2.4% (1)	42
major	<b>40.6%</b> (13)	37.5% (12)	12.5% (4)	3.1% (1)	0.0% (0)	0.0% (0)	3.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.1% (1)	32
		2007													Response Count
	zero	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-35	36-40	40+	
maternity	27.8% (10)	<b>50.0%</b> (18)	5.6% (2)	0.0% (0)	0.0% (0)	2.8% (1)	0.0% (0)	0.0% (0)	2.8% (1)	0.0% (0)	2.8% (1)	0.0% (0)	0.0% (0)	8.3% (3)	36
mating	<b>55.6%</b> (15)	33.3% (9)	3.7% (1)	0.0% (0)	3.7% (1)	0.0% (0)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	27
hibernation	45.2% (14)	45.2% (14)	6.5% (2)	0.0% (0)	3.2% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	31
transition	<b>37.0%</b> (10)	29.6% (8)	14.8% (4)	3.7% (1)	11.1% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	27
minor	9.1% (3)	<b>54.5%</b> (18)	15.2% (5)	0.0% (0)	9.1% (3)	3.0% (1)	0.0% (0)	6.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.0% (1)	0.0% (0)	33
major	<b>53.8%</b> (14)	34.6% (9)	0.0% (0)	0.0% (0)	3.8% (1)	0.0% (0)	3.8% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.8% (1)	26
		2006													Response Count
	zero	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-35	36-40	40+	
maternity	31.3% (10)	<b>53.1%</b> (17)	3.1% (1)	0.0% (0)	0.0% (0)	3.1% (1)	0.0% (0)	3.1% (1)	3.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.1% (1)	32
mating	<b>57.7%</b> (15)	34.6% (9)	3.8% (1)	0.0% (0)	3.8% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	26
hibernation	<b>55.2%</b> (16)	34.5% (10)	6.9% (2)	0.0% (0)	3.4% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	29
transition	<b>48.0%</b> (12)	24.0% (6)	12.0% (3)	4.0% (1)	8.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	4.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	25
minor	23.3% (7)	<b>30.0%</b> (9)	23.3% (7)	10.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	3.3% (1)	3.3% (1)	3.3% (1)	0.0% (0)	0.0% (0)	3.3% (1)	0.0% (0)	30
major	<b>53.8%</b> (14)	30.8% (8)	7.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.8% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.8% (1)	26

**6. which of these possible development site FEATURES have you found TO HAVE bat roosts? (tick all that apply):**  
**answered question, 57, skipped question, 24**

Answer Options	Response Percent	Response Count
<b>FARM BUILDINGS</b>		
farm steading	42.1%	24
farm out-building	75.4%	43
stables	40.4%	23
shed/ outhouse/ garage	42.1%	24
farm steadings/ quadrangle	33.3%	19
historic building	57.9%	33
<b>BRIDGES</b>		
bridge	49.1%	28
concrete bridge	24.6%	14
stone bridge	38.6%	22
disused bridge	28.1%	16
<b>TREES &amp; WOODS</b>		
trees, young (<15cm dbh)	10.5%	6
trees, mature(>15cm dbh)	56.1%	32
trees, veteran	33.3%	19
woods, deciduous	45.6%	26
woods, conifer	5.3%	3
<b>UNDERGROUND SITES</b>		
underground site	24.6%	14
house, ice	24.6%	14
underground culvert	21.1%	12
tunnel	22.8%	13
old mine	26.3%	15
<b>HOUSES</b>		
house, pre 1900 *	66.7%	38
house, 1900 - 1950 *	73.7%	42
house, 1950 – 1970 *	63.2%	36
house, post 1970 *	50.9%	29
lime kiln	15.8%	9
dovecot	7.0%	4
<b>Other (please specify)</b>		
water tower	1.8%	1
mixed woods	1.8%	1
<b>INSTITUTIONAL BUILDINGS</b>		
portakabin	1.8%	1
Mill race	1.8%	1
flat roofed office building	3.5%	2
Industrial / MoD unit / hangar	7.0%	4
Aqueducts	1.8%	1
quarry face	3.5%	2

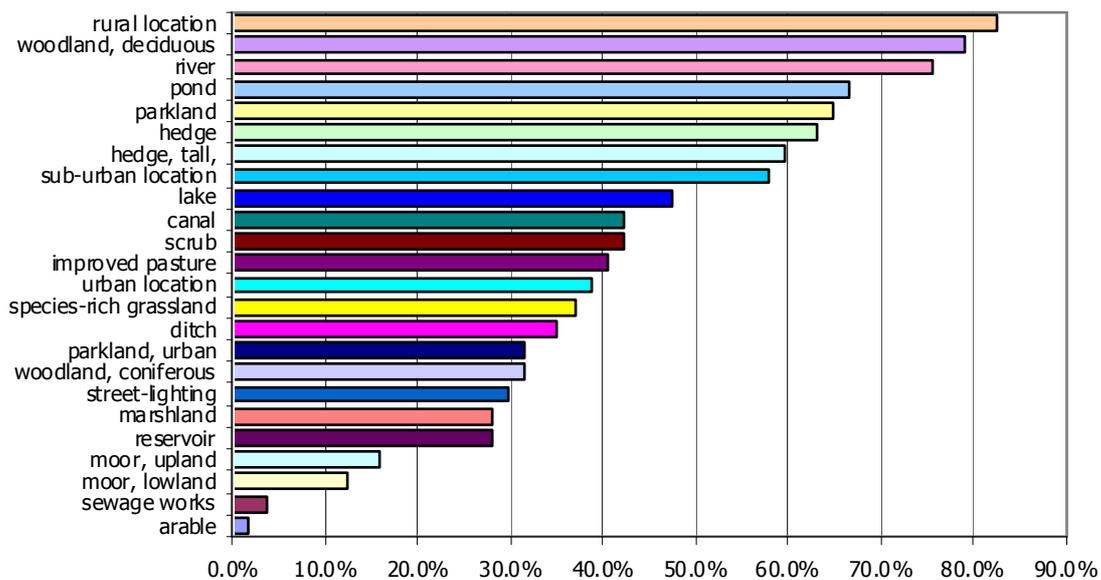
**7. which of these possible development site BUILDING FEATURES have you found TO BE ASSOCIATED WITH presence of bat roosts ? (tick all that apply)**

answered question, 57, skipped question, 24

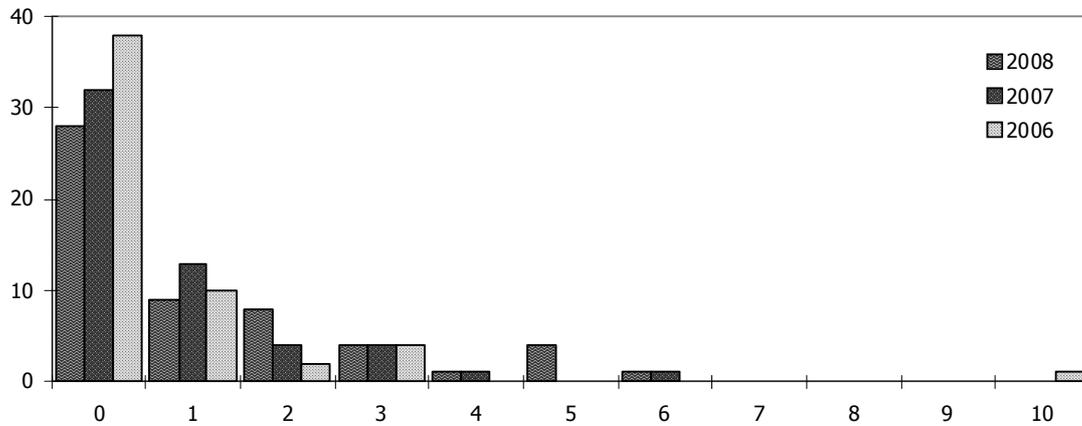
Updated spreadsheet, incl. distributed 'others'	No. respondents agree	% respondents agree
barge board	42	73.7%
ridge tiles	39	68.4%
slate roofing	37	64.9%
soffit box *	37	64.9%
stone walls	34	59.6%
brick walls	31	54.4%
cavity wall	31	54.4%
tiled roofing	28	49.1%
wooden roof trusses	28	49.1%
wood-clad walls *	27	47.4%
pantiles	21	36.8%
bitumen roofing * *	23	40.4%
stone roofing	17	29.8%
corrugated asbestos roofing	16	28.1%
tiled walls	16	28.1%
corrugated metal roofing	15	26.3%
loft insulation	15	26.3%
cement block walling	11	19.3%
Other (all re allocated to categories *)	6 respondees, 8 items	10.5%
lapped metal sheet roofing	3	5.3%
thatching	1	1.8%
building w large opening *	1	1.8%
boarded up windows * *	2	3.5%
hanging sacking / clothes *	1	1.8%

**8. which of these possible development site HABITAT FEATURES have you found TO BE ASSOCIATED WITH presence of bat roosts ? (tick all that apply)**

answered question, 57, skipped question, 24



**9. How many times (in 2006, 2007, 2008) have you been asked to undertake a survey AFTER bats have been found on a development site?** answered question, 57, skipped question, 24



**10. Do you feel that you have adequate access to existing local bat records?** (answered question 57, skipped question 24)

	Response Percent	Response Count
Yes	47.4%	27
No	52.6%	30

**11. how satisfied are you with the available guidance on bat surveys? (answered 54, skipped 27)**

Answer Options	unsatisfied	not very satisfied	OK	satisfactory	excellent	don't know it	Rating Average	Response Count
English Nature Bat Mitigation Guidelines 2004	2	5	14	22	11	0	3.65	54
EN Supplementary Guidance (north-east) 2004	2	5	2	8	4	27	3.33	48
BCT Bat Survey Good Practice Guide 2007	3	4	11	16	20	0	3.85	54
BCT bats and Planning leaflet	1	7	17	22	2	4	3.35	53
EN Bats and Barn Owls leaflet	1	4	17	13	2	14	3.30	51
Natural England webpage	5	7	16	13	2	8	3.00	51
BCT website	1	13	13	20	5	2	3.29	54

Comments<sup>19</sup>

- 1 none
- 2 Note that Scotland and Ireland do have separate guidance available
- 3 there is a lot of guidance out there. the way this is interpreted is important as this leaves little room for flexibility and applying own knowledge or experience. some specific guidance (eg trees) is still lacking or rather not very good
- 4 You don't mention the VWT booklet on guidance for lesser horseshoe bats and so few consultants that I come across have the necessary experience/expertise to deal with this species
- 5 To much conflicting guidance.

Natural England expect the guidelines to be followed but will overrule them and will expect and say they want more than what the guidelines say.

Unfortunately many council planning ecologists have adopted the BCT Guidelines as 'Gospel' rather than merely 'Guidance' and expect costly, both economically and temporally, surveys to be carried out under the best conditions at the best times of year in all circumstances. When no bats are found or not as many as they could

like they complain and question the experience and reliability of the surveyor(s).

The high economic cost of surveying and the unwillingness of planning ecologists to help developers gain their planning consent whilst helping bats is (and increasingly will) leading to developers to ensure no bats are present when surveys are to be conducted.

People should not be penalised for the presence of bats, but helped to ensure that harmony can exist between the development and the bats, otherwise, their presence will be actively discouraged.

- 6 BCT survey guidelines are too minimalistic and do not offer sound baseline data for any EPS or ecological impact assessment survey.

For example: Non ecologists will take the recommended survey frequency as a "statement of requirement" and that is all the work that is required regardless of the site.

SNH do not even refer to it when they give out advice for requesting a bat survey

- 7 0 (sic)
- 8 Basic recommended methods are not actually effective. No indication of sex of foraging animals and no indication of the size of breeding populations within an area can be extracted by these methods.
- 9 Leaflets mainly for owners rather than experienced surveyors.
- 10 Some of the information available is not specialist or specific, some information was sponsored and then contributed to by large ecological consultancies not individual bat specialists which should have been the case. there is some good guidance information out there such as Vincent Wildlife Trust mitigation for Lesser Horseshoe bats, this goes into the detail required for one species.
- 11 The English Nature Mitigation Guidelines needs updating.
- 12 J (sic)
- 13 I tend to use Scottish guidance and communications with contacts in bat circles - BCT and NE guidelines seem to specialise more in English planning and legislation.
- 14 English Nature (Natural England) do not cover Wales. Wales is covered by the Countryside Council for Wales (CCW) and the Welsh Assembly Government (WAG). Development licences for bats in Wales are issued by WAG NOT Natural England, or CCW. All bat workers in Wales are licensed by CCW
- 15 Survey and mitigation guidelines are vague. For example: 2/3 surveys, optimum June to August etc... Clearly there are times where there are exceptional circumstances, but this should be agreed with SNCOs on a case by case basis, rather than built into guidance. The consequence is that consultants are under constant pressure from informed clients to cut down the scope of surveys to the minimum that they can get away with and/or at sub-optimal times of year.
- 16 Are big gaps in guidance that leave us often in a very difficult situation, and NE sometimes reluctant to advise on specifics.
- 17 Missed bat workers manual
- 18 BCT good practice should really be 'best practice'. good suggests more than the minimum adequate surveys, which is not the case with this document. Its also confusing.
- 19 The mitigation guidelines could be improved with further examples of different scenarios including more information (i.e. rather than simple overview explaining why certain habitat compensation was completed, why certain structural features were included / omitted etc.).

## 12. what information or guidance would you find most helpful in addition to the available guidance on bat surveys? (answered 41, skipped 40)

- 1 more local recorders/consultants submitting records!

more consistency amongst planners/LA ecologists - some require bat survey for a derelict boatshed (4 posts and a felt roof) while others seem to completely ignore the potential for bats to be present

guidance for developers which says categorically that there is no point submitting your application until you have carried out all the necessary survey, and for planners to adopt this approach in all instances

- 2 just for everybody to sing from the same hymn sheet for once !

- 3 current guidance provides a lot of information. Can't think of anything that would make surveying easier although I often wonder if a scoring system a bit like the Great Crested Newt indices would be useful or whether it would make things more cumbersome.

- 4 no more guidance for surveys but planners taking note of PPS9 in a reasonable way - some areas take it out of all context - ie bat survey on every single structure including 3 activity surveys, and some ignore it all together - eg report detailed maternity roost and recommended activity surveys & planning permission given with no further surveys undertaken and no condition re the known roost(s)

- 5 See above

- 6 Planning ecologists need to have a uniform approach to dealing with surveys. A survey that is deemed excessive by one planning area can be viewed as not detailed enough by another.
- There are too many cow-boy bat workers producing poor survey reports, and guidelines for planners on discouraging these needs to be made.
- 7 Common trigger criteria, and most importantly information for clients on when a survey will be required and how long/what may be involved.
- 8 Regulatory & statutory authorities to be more accountable for their (lack of or bad) advice.
- Avoid the use of checklists by planners in determining whether a development site has potential for bats - can only be determined by bat ecologist.
- 9 Most guidance biased towards south & lowland habitats. Need something for north & uplands.
- 10 0
- 11 Emphasis on need for baseline data on the breeding populations in a given area
- Need for landscape scale survey on proposed development zones etc etc
- 12 Guidance on whether or not to do emergence surveys (a lot of bat surveyors actually over-egg the need for this in my opinion, perhaps because of greater fees?).
- Uniformity between planning authority requirements.
- 13 photographic examples
- 14 More detailed specific examples of survey effort from real life examples that satisfy SNCOs
- 15 more detailed mitigation on a species by species approach for consultants.
- more detailed survey methodology for large development sites on correct survey methodology using trapping and radiotracking.
- 16 More guidance on correct timing of surveys could be provided so applicants are more aware of the constraints
- People are still reluctant to pay for multiple survey visits and advice provided by consultants seems to vary across the board (i.e. price over quality!)
- 17 More information on local records of bats.
- 18 Planning authority triggers for bat surveys (age/type of building)
- individual LPA/statutory authority policies on frequency & timing of bat surveys in relation to developments outside of roosts - ie windfarms, large developments affecting foraging/sommuting
- Application of European guidance on windfarms
- 19 independent research carried out by universities or wildlife trusts and only a select individuals know about these studies or results.
- 20 j
- 21 BCT Guidelines are very useful, I think a review of these guidelines would be beneficial in the next few years to establish how effective they are in practice across the country.
- It would be useful to have more detailed information on exclusions e.g. how to practically undertake them (lots of examples that have worked) as well as the potential impacts this could have to local bat populations compared to not excluding bats and allowing them to be temporarily disturbed (assuming the roost will not be removed by a development)
- 22 I would find it very useful if more scenario based guidance were available.
- For example:
1. Development site consists of derelict warehouse, several mature trees with rotholes.
  2. Roost suitability survey undertaken.
  3. No evidence of bats found but trees considered to offer medium roost suitability
  4. 1-3 emergence surveys including timing and numbers of surveyors required.
- Also I would like to see more guidance on what might constitute disturbance of bat roosts e.g. construction activity within 20-50m of a known roost. What is licensable and what isn't.
- More regional advice e.g. Scottish bats and timing

- Specific advice on 'reasonable' methodologies for wind farms (not the gold plated Eurobats guidance)
- 23 Laid out guidelines on wind farm development
- BCT Guidelines to be consistent throughout - there are some key contradictions within
- 24 Big roost guidance is OK; the biggest area of 'grey' is how to sensibly manage risk of low levels of use of structures and trees by bats for shelter, rest, socialising or feeding. Include W&C1981 as well as Habs Regs.
- 25 Guidance on EPS licencing - gradually improving however
- 26 better access to existing bat records - I am sure that many significant roosts and development impacts on them are not investigated because the roosts are not known to consultants or developers.
- 27 upcoming sonogram analysis booklet by Sandie Sowler
- 28 Strengthening of guidance to ensure that variations to the standard scope and methodology of bat surveys need to be justified and agreed with SNCOs/County Ecologists. This will ensure consistency across the industry (both for consultants quoting for surveys, and SNCO/planning ecologists interpreting them), and contribute to achieving more robust minimum survey standards and survey effort.
- Wind farm guidance is needed, once there is consensus on what causes mortality/how to reduce impacts
- 29 Clarification on windfarm survey effort - all current guidance very generally, leaning on being extremely over cautious and often it feels like we are having to do more surveys just for the sake of it.
- 30 More specifics in terms of mitigation e.g. bat requirements vs building regs or best building practice - often in conflict. I have numerous examples of this.
- How long should a bat roost be unused before it's no longer considered a roost - droppings can persist in a sheltered environment for some time.
- 31 UP to date bat records on NBN gateway. County bat group websites with information on local status and local idiosyncracies - e.g. Natterer's in the Chilterns behave differently to those in Weardale!
- 32 Being able to consult local Natural England / CCW / SNH staff and local authority ecologists about the scope of survey work while planning a survey protocol. There is a tenancy to deflect all protected species queries to the licensing authority who will not provide an answer unless it is part of a licence application.
- 33 Anabat sound analysis guidance
- 34 clear guidance from individual planning authorities on their interpretation / requirement
- clear guidance on what to do with very small bat roosts that stand in the way of development, e.g. one to four roosting common pips in a building to be demolished - whether this should require a licence or can be done under a method statement
- 35 More detail records available and easily accessible
- 36 Adequate training for many of the ones I come across. I have been working with bats for nearly 30 years and the standards of many new commercial ecologists is pathetic!
- 37 A document which draws together the BCT good practice, NE bats and wind turbines and EN bat mitigation guidelines
- 38 Techniques for large windfarm sites are not always practical but we should be looking in any suitable habitat that may be affected by development. This therefore requires attention to detail and mapping with preferably a suitable Phase 1 habitat map used to inform where to undertake the bat surveys. ideally this should be done prior to the bat survey. Time constraints are a key issue and the cost to developers is significant in these cases. More knowledge of the impacts of windfarms is needed. Specified bat detection devices, surveys and readings should be specified for minimum requirements on large sites in particular.
- 39 more on windfarms, i.e. a published windfarm best practice surveys for windfarms or small turbines.
- 40 The good practice guidelines are somewhat generalistic once you try to apply them to specific surveys. Although they give a good base I wouldn't say that they are detailed. From talking to diferent consultants a lot of people take very different approaches to preliminary survey work (i.e. to determine presence / absence when there are no signs of bats but suitable structural features to take a precautionary approach some undertake only emergence or dusk surveys whilst some combine both).
- 41 Something which addresses the growing tendency for the BCT bat survey guidelines to be treated as rules - something which stresses that experience and knowledge are far more valuable than blind adherence to what are inevitably very generalised guidelines!

**13. are clients generally willing to accept the timescales and costs that you need for effective bat surveys? (please tick all that apply)**

	Response Percent	Response Count
yes	38.9%	21
no, object to possible time delays	75.9%	41
no, object to level of costs	61.1%	33

no, other	22.2%	12
	<i>answered question</i>	54
	<i>skipped question</i>	27

- 1 object to loss of development space
- 2 At the moment, they ususally have their plans in a final stage before the bat survey mitigation mean an expensive re-draw!
- 3 haven't had to do a bat survey on a similar site; also request for abt survey often comes at the very end of application work = unexpected long delays
- 4 fear of wind farm shutdown
- 5 clients often unhappy at the late stage of the scheme that bats are raised as an issue by LPA.
- 6 This varies accross the board and depends on the type of client e.g. small householder extending their property to a large developer.
- 7 both time & cost implications
- 8 depends on the client and their timescales, cant really generalise
- 9 Generally yes but depends on ability to understand concepts of seasonality and legislation
- 10 occasionally timescales are inapt for proposed development/maintenance works programme
- 11 object in principle!
- 12 I have experience of every conceivable response! It's normally pretty grumpy however.

**14. do you feel that planning authorities request bat surveys often enough?**

	Response Percent	Response Count
yes	30.2%	16
no	69.8%	37
	<i>answered question</i>	53
	<i>skipped question</i>	28

**15. do you find that recommended further survey work, conditions or mitigation that you recommend in a survey report are generally adopted by the planning authority? (answered 53, skipped 28)**

	Response Percent	Response Count
yes	52.8%	28
no	22.6%	12
unknown	24.5%	13