



Huyton Business Park

Bat Survey Report

September 2021

Control sheet

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Contents

1. Introduction	1
2. Methodology	2
3. Results	4
4. Impact Assessment and Recommendations	5
5. Mitigation and Enhancement	5
References	7
Appendix 1 - Summary of relevant legislation	8
Appendix 2 - Building Descriptions & Photographs	9
Appendix 3 - Information for Contractors	14

1. Introduction

- 1.1 Bowland Ecology Ltd was commissioned by Linden Hill-Capital Assets-ALX Limited to complete bat emergence surveys of a large warehouse/office block at an industrial estate in Huyton, Liverpool (NGR: SJ 45755 90004). These surveys follow a preliminary roost assessment which identified a large building with low potential to support roosting bats. The site is subject to proposals for the installation of several new storage units and the construction of 305 new parking spaces, which would form a wide area of flat, hard standing.
- 1.2 The site is located within Huyton Business Park, in Knowsley, central Merseyside. It mostly comprises bare ground with patches of sparse ephemeral vegetation, scrub and trees line the site boundaries along with Logwood Mill brook, which runs along the north-eastern edge of the site. The site was initially visited as part of a preliminary ecological assessment (PEA) (Bowland Ecology, 2021), which identified buildings with bat potential that would require demolition to facilitate the new scheme. The buildings comprise a large warehouse style building with an adjoining office block, constructed from a mixture of materials including red brick, asbestos sheeting, and metal sheeting on large steel frames.
- 1.3 The purpose of the surveys was to 1) make an assessment of the value of the site for bats, with particular reference to legal requirements (Appendix B) and 2) identify potential impacts and provide recommendations pertaining to the proposed works. This report includes a description of survey methods, results and outlines recommendations to provide protection and enhancements for bats.

2. Methodology

- 2.1 The building inspection survey, bat surveys and report follow the Bat Conservation Trust (BCT) 'Good Practice Guidelines' (Collins, 2016), the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017 a), the Guidelines for Ecological Report Writing (CIEEM, 2017 b) and the Guidelines for Ecological Impact Assessment (CIEEM, 2018), and are in line with the British Standard BS42020:2013 'Biodiversity – Code of practice for planning and development'.

Desk Study

- 2.2 The aim of the desk study was to identify any records for bats/bat roosting sites within the 1 km of the survey site. Local records on and within 1 km of the site were obtained following a data search with Mersey Biobank completed in July 2021 as part of the PEA. Ordnance Survey maps and aerial photographs (<http://maps.google.co.uk/maps>) were reviewed to help identify any continuous habitat and any other notable habitats suitable for bats within the surrounding area. The Multi-Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk) was reviewed for information on active Natural England Licence applications for bats in the surrounding area.

External Building Inspection for Bats

- 2.3 A daytime external search of the Site was undertaken in July 2021 by Lucy Pocock BSc (Hons), and Luke Hall BSc (Hons); the full methodology is provided in Bowland Ecology (2021).

Dusk Emergence and Dawn Return Surveys

- 2.4 The dusk emergence and activity surveys were undertaken with the aid of time expansion, heterodyne and frequency division detectors (Bat Box Duet and Echo Meter Touch 2). Species identification was aided by the use of detectors and the experience of the surveyors. All recorded calls were subsequently analysed to confirm identification of the species encountered during the survey.
- 2.5 Surveyors were positioned to give the best coverage of the building and to cover all possible emergence locations as informed by the initial building inspection. Surveyor locations during each survey are shown on Figure 2 below. Table 1 provides the details of the surveys undertaken including; dates, surveyors, and weather conditions.
- 2.6 During the second survey, surveyor positions were guided by the results of the first survey.
- 2.7 The emergence survey was completed at an appropriate time of year and the weather conditions were suitable, therefore a comprehensive assessment of the potential of the building to support roosting bats was undertaken.



Figure 1 – Plan showing locations of surveyors

Table 1: Evening Emergence Survey Details

Date	Type of survey	Time	Sunset/Sunrise	Weather	Surveyors
24/08/21	Evening emergence	20:06 – 21:51	20:21	Dry, partly cloudy (70%), and still (BF0). 20°C start temperature, 19°C end temperature.	Lucy Pocock (BSc Hons), Helena Davies (BSc Hons), Jordan Simpson (BSc Hons), Felicity Davies.
31/08/21	Evening emergence	19:49 – 21:34	20:04	Dry and cloudy (100%) with a light breeze (BF1, SW). 16°C start temperature, 15°C end temperature.	Lucy Pocock (BSc Hons), Luke Hall (BSc Hons), Rachel Platt (BSc Hons).

Survey Limitations

- 2.8 Bat surveys are limited by factors such as poor weather conditions, time of year, constraints to access for inspections and areas with restricted view. Weather was considered optimal for both surveys, however as the site is used for storage of large vehicles such as lorries and caravans, sometimes visibility to parts of the building was obscured. This was accounted for by using additional surveyors, at differing positions over the two surveys. Therefore, paired with the very low bat activity levels recorded on both surveys, this is not considered a significant constraint and is not considered to affect the overall conclusions of this report.

3. Results

Desk Study

- 3.1 The full results from the desk study in relation to bats, are provided in Bowland Ecology (2021). The desk study returned 139 records of foraging and commuting bats and five records of bat roosts within 2 km of the site. Species recorded included common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), unidentified pipistrelle (*Pipistrellus* sp.), Daubenton's bat (*Myotis daubentonii*), Noctule bat (*Nyctalus noctula*), Natterer's bat (*Myotis daubentonii*), Whiskered bat (*Myotis daubentonii*), Myotis species (*Myotis* spp.), and unidentified bat species. The closest bat roost is of Brown long-eared bat located 1.2 km south of the site. Specific details of the roost are not included within the desk study information.

External Building Inspection for Bats

- 3.2 The full results of the building inspections are described and evaluated in Bowland Ecology (2021). The assessed building comprises several construction styles, the warehouse is in particularly poor condition with splintered timber soffits, and lifted fascia's, lead flashing, and asbestos/metal sheeting. The office block is in better condition and constructed from red brick with well-sealed PVC cladding, windows, and doors. Minor gaps and missing mortar were noted in the brickwork, particularly on the north and south elevations. All elevations are well-lit with flood lights attached to external walls, as well as on hard standing areas surrounding the building. The warehouse building and adjoining office block were identified as having low potential to support roosting bats. Detailed building descriptions can be found in Appendix 2. The results of the building inspection will not be discussed further within this report.

Dusk Emergence and Dawn Return Surveys

- 3.3 The surveyors were positioned at locations 1, 4, 5, and 7 (see Figure 1) during the first evening emergence survey (24th August). The results of the first survey were used to focus surveyor effort on areas of high potential (if any) on the subsequent survey. Surveyors were positioned at locations 2, 3, and 6 during the second survey (31st August).
- 3.4 No bats were observed to emerge from any part of the building during the surveys and overall activity surrounding the buildings was very low, with no bats recorded during the first survey, and only 2 individual bat passes recorded during the second survey comprising a common pipistrelle and a noctule. Both passes were heard on the detector but not seen in flight, the duration and strength of the call suggests that both were brief commuting passes over the site. The full results of the emergence surveys are shown in Table 2 below.

Table 2: Summary results of the evening emergence surveys at Huyton Industrial Estate.
(CP = common pipistrelle, N = Noctule)

Bat Surveyor Recordings (Time Expansion, Frequency Division and Heterodyne Detectors)				
24/08/2021	Surveyor 1	Surveyor 4	Surveyor 5	Surveyor 7
Time of first bat	N/A	N/A	N/A	N/A
No. of emergent bats observed, location and time emerged	0	0	0	0
Approx. No. of bat passes	0	0	0	0
Species observed	NIL	NIL	NIL	NIL

31/08/2021	Surveyor 2	Surveyor 3	Surveyor 6	
Time of first bat	20:47 (CP)	N/A	20:25 (N)	
No. of emergent bats observed, location and time emerged	0	0	0	
Approx. No. of bat passes	1 (1 x CP)	0	1 (1 x N)	
Species observed	CP	NIL	N	

4. Impact Assessment and Recommendations

- 4.1 The site is subject to proposals for the installation of several new storage units and the construction of 305 new parking spaces, which would create a large area of hardstanding. During the inspection, the building was found to provide several roosting opportunities suitable for crevice dwelling bat species such as common pipistrelle. Following the initial building inspection, two dusk emergence surveys were conducted at the site.
- 4.2 No bats were observed to emerge from any area of the building. Furthermore, very low levels of bat activity were recorded at the site with only two, brief bat passes in total. The risk to bats from the demolition of the buildings on site is considered negligible.
- 4.3 The demolition of the building will result in a loss of suitable roosting opportunities in the area, and therefore should be mitigated for. Furthermore, any loss of tree and/or scrub habitat on the site boundary will constitute a loss of potential bat foraging and commuting habitat.
- 4.4 Such low bat activity is unusual given the optimal weather conditions and suitable foraging habitat adjacent to the site such as Logwood Mill Brook. It is likely that the extensive floodlighting used on and around the site has deterred bat presence. The new scheme presents an opportunity to enhance the site for bats, to encourage roosting, foraging and commuting activity.

5. Mitigation and Enhancement

- 5.1 As bats are a mobile species and roosting habitat is available, ideally works will commence in winter when bats will be in hibernation and are highly unlikely to be roosting within the buildings. Furthermore, the annually recurring presence of nesting birds on both the roof and in the building, makes winter demolition the most feasible option. If the works are to commence during the bat active season, as a precaution, the working methods below are advised to reduce the risk of impacting bats during the works.
- 5.2 The loss of PRFs on the building are considered to be minimal, as the new development proposals include construction styles sub-optimal for bat roosts (warehouse style units), the loss of roosting opportunities can easily be compensated for with the addition of **two** Schwegler 2F bat boxes on trees located along the site boundary. Bat boxes will be south or south-west facing; at least 4 m high; **in unlit locations**; and with clear uncluttered flight lines to and from the entrance.
- 5.3 The following precautionary measures must be adhered to if the works are carried out during the bat active season, due to the presence of suitable roosting features on the building:
- Before any works proceed all contractors should be made aware of the possible presence of bats and the signs to look for and procedure if bats are found or discovered (see Appendix 3);
 - If a bat is found or suspected on site all works should cease and the ecologist called immediately, leaving the bat in situ, if the bat is in immediate danger it should only be picked up with gloved hands and placed in a secure container with air holes in a dark, quiet place until the ecologist arrives at site;
 - **The lighting scheme for the project will be designed in accordance with best practice guidance (ILP, 2018), to encourage bats onto the site.**

- 5.4 The integration of bat roosting habitat will not cause disturbance to users of the development, nor create aesthetic problems. It should be noted that the suitability of a roost location is not only related to the features of that particular building/bat box, but also the characteristics of the surrounding habitat, e.g. vegetation structure, light levels. Therefore, any new artificial roosting location should also include provision to replicate these characteristics where possible, for example, sensitive lighting and suitable soft landscaping.
- 5.5 External lighting, such as security lights or path lighting, close to new roosting features should be avoided post construction, as external lighting is known to have detrimental impacts on the emergence behaviour of roosting bats (Mitchell-Jones 2004), along with impacting insect behaviour (bats food source) (Boyce et al 2021); therefore, reducing the efficacy of the mitigation and enhancement measures. Any new lighting schemes should be designed in accordance with the appropriate guidance (BCT & ILE 2018) to minimise the impacts on foraging bats likely to be utilising the habitats. This document includes (but not limited to) measures such as;
- Use of low-pressure sodium lamps or high-pressure sodium instead of mercury or metal halide lamps; and
 - Lighting should be directed to where it is needed and light spillage avoided in particular along the site boundaries.
- Other considerations***
- 5.6 Timetabling of any tree felling or demolition works required for the development will take into consideration the breeding bird season (March – August). If felling is required within this period, the scheme ecologist should be contacted prior to works to complete a nesting bird check.
- 5.7 If no works are undertaken on site within 12 months of this survey or if any changes to the proposal timescales are made, a further ecological survey is recommended (because of the mobility of animals and the potential for colonisation of the site).

References

Bowland Ecology (2021) *Huyton Business Park, Ecological Appraisal*, BOW17.1277

Boyes, D.H., Evans, D.M., Fox, R., Parsons, M.S. and Pocock, M.J., 2021. Street lighting has detrimental impacts on local insect populations. *Science Advances*, 7(35), p.eabi8322.

Collins, J. (ed.) (2016) *Bat Surveys For Professional Ecologists – Good Practice Guidelines*, 3rd Edition. The Bat Conservation Trust, London.

Institute of Lighting Professionals (2018) *Bats and artificial lighting in the UK*. The Bat Conservation Trust, London.

Mitchell-Jones A.J. (2004) *Bat Mitigation Guidelines* English Nature

Appendix 1 – Summary of Relevant Legislation

Species	Legislation (England & Wales)	Offences	Notes on licensing procedures and further advice (England & Wales)
Species that are protected by European and national legislation			
Bats	Conservation of Habitats and Species Regulations 2017 Reg 41	- Deliberately¹ capture, injure or kill a bat; - Deliberate disturbance² of bats; - Damage or destroy a breeding site or resting place used by a bat. The protection of bat roosts is considered to apply regardless of whether bats are present.	An NE licence in respect of development is required in England. https://www.gov.uk/bats-protection-surveys-and-licences <i>European Protected Species: Mitigation Licensing- How to get a licence</i> (NE 2010). <i>Bat Mitigation Guidelines</i> (English Nature 2004). <i>Bat Workers Manual</i> (JNCC 2004).
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.9	Intentionally or recklessly ³ obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place.	Licence from NE is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.
Birds	Conservation of Habitats and Species (Amendment) Regulations 2017	N/A	Authorities are required to take steps to ensure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat. This includes activities in relation to town and country planning functions.
	Wildlife and Countryside Act 1981 (as amended) ⁴ S.1	Intentionally kill, injure or take any wild bird; Intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; Intentionally take or destroy the nest or eggs of any wild bird. Schedule 1 species Special penalties are liable for these offences involving birds on Schedule 1 (e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover). Intentionally or recklessly³ disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species.	No licences are available to disturb any birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety.

¹Deliberate capture or killing is taken to include "accepting the possibility" of such capture or killing

²Deliberate disturbance of animals includes in particular any disturbance which is likely a) to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong.

Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2010 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided. Thus deliberate disturbance that does not result in either (a) or (b) above would be classed as a lower level of disturbance.

³The term 'reckless' is defined by the case of Regina versus Caldwell 1982. The prosecution has to show that a person deliberately took an unacceptable risk, or failed to notice or consider an obvious risk.

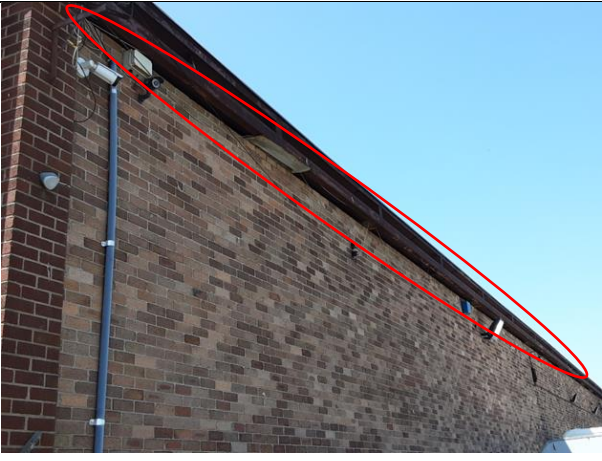
⁴ The Wildlife and Countryside Act (1981) has been updated by various amendments, including the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006. A full list of amendments can be found at <http://jncc.defra.gov.uk/page-1377>.

Appendix 2 – Building Description

Building & elevation	Description	Photograph
Office/warehouse, South-eastern elevation	Primarily constructed from red brick with red PVC fascia, the structure of this building is in moderate condition. The roof is flat, with a felt covering. This appears in good condition with no lifting noted. The timber door, however, is in poor condition with missing slats forming potential roosting features (PRFs), along with a timber board covering the upper most half of the door and wall, which has several circular gaps allowing access to a small crevice between the wooden board and the wall. Other PRFs on this elevation include missing mortar on degraded brickwork near to the top of the building.	
Office block, north-western elevation	Primarily constructed from red brick with red PVC fascia, the structure of this building is in moderate condition. The roof is flat, with a felt covering. This appears in good condition with no lifting noted, likewise the PVC window is well-sealed. A timber soffit located on the eastern elevation of this section (where the guttering is attached, overlooking the warehouse unit), appears degraded with several splinters and gaps presenting PRFs. Plastic corrugated sheeting is attached to the bottom half of the structure; whilst corrugated sheeting can provide PRFs for bats, in this case the transparent material is unsuitable, likely providing wide ranging temperature fluctuations and light levels. A large flood light is also present, likely lowering the suitability of the PRFs present.	

Office block, western elevation	This section of the building faces a relatively busy road, on a street lined with streetlamps; scattered semi-mature trees also line this section of the pavement. The building is primarily constructed from red brick with red PVC fascia's, the structure of this building is in moderate condition. The roof is flat, with a felt covering. This appears in good condition with no lifting noted, likewise the PVC windows all appear well sealed. No PRFs were noted on this elevation.	
Warehouse, south-eastern elevation	This building is primarily constructed from red brick, with several pitched roofs on steel frames that are covered with asbestos sheeting. Some of the pitches have sky lights present; there is no loft space. The brickwork is in relatively good condition; however the roof structure/materials appear to be deteriorating. Several PRFs were noted across this elevation, including lifting lead flashing along the roof verges, Missing/damaged verge apex caps, and holes in the brickwork. However, extensive floodlighting across this elevation likely lowers the value of these features for roosting bats.	

		
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Warehouse, eastern elevation	This building is primarily constructed from red brick, there are several pitched roofs with steel frames that are covered with asbestos sheeting. Some of the pitches have sky lights present; there is no loft space. The brick work on this elevation is in excellent condition. There is a large gap between the top of the wall and the roof that spans the length of the building, here the steel frame is exposed. This provides entry into the building. However, due to the nature of the storage facility on site, the internal structure of the building is unsuitable for roosting void dwelling bats (brown long ear, maternity roosts) due to constant noise, light, and vibrational disturbance. Furthermore, floodlights present across the elevation will likely deter bat presence.	
Warehouse, south-eastern and eastern elevation.	This section of the warehouse is constructed from a red brick base with asbestos sheeting both on the walls and roof structure. The roof is pitched with several skylights present. The building is in poor condition. Corrugated asbestos sheeting provides limited PRFs suitable for crevice dwelling bats. In addition, a splintered timber soffit on the eastern elevation provides a PRF. However, floodlights present across the elevations will likely deter bat presence.	

		
Warehouse, north-eastern elevation	This section of the warehouse is constructed almost entirely from asbestos sheeting on large steel frames, with metal concertina style shutter doors on the openings. These shutters are open for most of the day and there is constant activity inside the buildings. Asbestos sheeting provides limited PRFs. The potential of these features is lowered due to disturbance and the presence of flood lighting.	 

Appendix 3 – Information for contractors

BATS



Information, legal responsibilities and best practice for the construction industry

Legal Protection

All UK Bat species are protected by European and UK law, in practical terms this means it is an offence to:

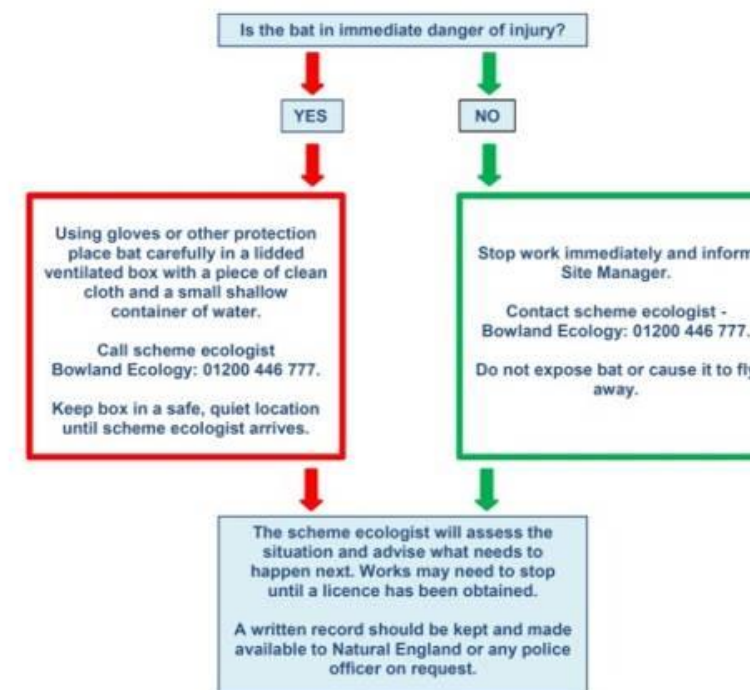
- Deliberately capture, injure or kill a bat;
- Deliberately disturb bats;
- Damage or destroy a breeding site or resting place (even if bats are not occupying the roost at the time);
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place;
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.

Penalties on conviction: the maximum fine is £5,000 per incident or per bat (some roosts contain several hundred bats), up to six months in prison, and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.

Defences include:

1. Tending/caring for a bat solely for the purpose of restoring it to health and subsequent release.
2. Mercy killing where there is no reasonable hope of recovery (provided that person did not cause the injury in the first place – in which case the illegal act has already taken place).

Found a bat during unsupervised works?



Field signs of bat presence:

- Live or dead bats: the smallest UK bat species, the pipistrelle is only 3.5-4.5cm long.
- Droppings: bat droppings look like mouse droppings but will crumble between your fingers (they are dry and made entirely of insects).
- Feeding remains: piles of butterfly/moth wings are often left below bat feeding perches.



Places that bats may use in buildings



Schematic from www.bats.org.uk

Bats can roost in the following places:

- The top of gable end or dividing wall;
- The top of chimney breasts;
- Ridge and hip beams and other roof beams;
- Mortise and tension joints;
- All beams/ceilings/pipework (free hanging bats);
- The junction of roof timbers, especially where ridge and hip beams meet;
- Behind purlins;
- Between tiles and the roof lining;
- Under flat felt roofs;
- In trees (cracks/holes/ivy cladding) ;
- Under barge boards;
- In cavity walls;
- In cracks in stone or concrete;
- Behind peeling paint/wall coverings;
- Gaps behind window and door frames;
- Between window panes and timber boarding.

Why wear gloves?

There is a small risk that some bats carry a rabies virus – European Bat Lyssavirus. The purpose of wearing gloves is to reduce the chance of being bitten, as the virus is transmitted via bat saliva. Thick leather gloves are appropriate for removing a bat from imminent danger but these should be clean.

In the event that you are bitten, wash the wound, gently but thoroughly, with soap and water. Speak to a health professional immediately, advising them that you have been bitten by a bat.



References:

Bat Conservation Trust. August 2016. Why wear gloves when handling bats?
BCT Bat Surveys for Professional Ecologists, Good Practice Guidelines, 3rd Edition, 2016

version 1 August 2017