

A Bat and Badger Assessment of Auburn House and Little Auburn and Associated Lands to Determine the Potential Impacts of The Proposed Development



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Introduction

Most of Ireland's mammals enjoy protection under the Wildlife Act (1976) and the more recent updating of this legislation (Wildlife (Amendment) Act 2000, S.I. No. 94 of 1997, S.I. No. 378 of 2005, European Communities (Natural Habitats) (Amendment) Regulations, 2005). In conjunction with the enactment of the Habitats Directive into Irish legislation, all native mustelid species and bat species are protected with further protection given to otters and lesser horseshoe bats.

Determining the mammal fauna of an area may involve a high level of assessment if the aim of the survey is to catalogue all mammals but this is too detailed for the aim of creating mitigation for a new road alignment.

This assessment is aimed at identifying the presence of badgers and their setts and bats and their roosts within lands proposed for the construction of housing in the grounds of Auburn House and Little Auburn, Malahide, Fingal, County Dublin.

The survey undertaken within the site allows a targeting of mitigation measures to the appropriate or most efficient sites to prevent accidental death or injury and to determine if it would be possible to provide safe passage across long-established routes through any new development.

Fieldwork for the current report on mammal distribution within the grounds of Auburn House and Little Auburn in the Malahide area was carried out by Brian Keeley. This report addresses the main issues affecting the badger and bat fauna considered in this assessment and created by the necessary activities associated with house construction and the preparation of a site and subsequent human occupancy and actions.

Construction activities and subsequent daily activity of the housing and the associated new roads create a number of significant short-term and long-term risks for the resident badger and bat population, in addition to impacts upon other vertebrates and invertebrates. The construction itself may involve the removal of key features of the surrounding environment and of the habitats of badgers, bats and other mammal species, such as trees, hedgerow lines and grassland in which to feed. The most damaging operation is the potential for the destruction of badger dwellings (setts) during the vegetation clearance and early earthworks and of the accidental exclusion or killing of bats roosting within trees upon the site.

The development that is under discussion is described below:

Planning permission is sought by Kinwest LTD. for a proposed Strategic Housing Development on lands at Auburn House (Protected Structure), Little Auburn and Streamstown off Malahide Road and Carey's Lane, Malahide, Co. Dublin. The proposed development will consist of the preservation and protection of the existing Protected Structure of Auburn House as 1 no. residential dwelling; the conversion of the existing stables of Auburn House to accommodate 4 no. dwellings and the construction of 412 no. residential dwellings, apartments and duplexes providing for an overall total of 417 no. residential units (110 no. dwellings, 248 no. apartments & 59 no. duplexes) along with 1 no. childcare facility. The development comprises:

- 1) The preservation of the existing three storey 11 bedroom residential dwelling of Auburn House (Protected Structure). The main house is to remain in single residential use (i.e. 1 no. 11 bed, three storey detached dwelling).
- 2) The conversion of the existing stables to the rear of Auburn House into 4 no. two storey terraced residential dwellings (1 no. 3 bed unit, 2 no. 2 bed units and 1 no. 1 bed unit). Internal and external alterations to the stables of the Protected Structure including minor demolition works are proposed to accommodate same;
- 3) The preservation and protection of the existing woodland of Auburn House;

- 4) The preservation of existing follies and walls associated with the 'side garden' with amendments to the garden proposed to accommodate the proposed development.
- 5) The demolition of the modern bungalow dwelling known as 'Little Auburn' and associated outbuildings;
- 6) The construction of:
 - a. 105 no. residential dwellings (46 no. three bed units, 48 no. four bed units and 11 no. 5 bed units) in detached, semi-detached and terraced dwellings ranging from 2, 2.5 and 3 storey in height;
 - b. 248 no. apartment units (105 no. one bed units, 130 no. two bed units and 13 no. 3 bed units) in 7 no. apartment blocks ranging in height from 3- 5 storeys all provided with balconies/terraces;
 - c. 59 no. duplex units (29 no. one bed units, 21 no. two bed units and 9 no. three bed units) in 6 no. duplex blocks all 3 storey in height and all provided with balconies/terraces;
- 7) The provision of 1 no. childcare facility (located within the ground floor apartment block 4);
- 8) The construction of 1 no. new vehicular entrance off Malahide Road (providing for a new signalised junction with Back Road and Malahide Road) and 1 no. new vehicular entrance off Carey's Lane;
- 9) Utilisation of existing vehicular entrance access and road for pedestrian and cycle route only with vehicular access retained solely for existing residential use;
- 10) Landscaping including playground and boundary treatments;
- 11) 2 no. esb substations, 1 no. new foul pumping station, car parking; bicycle parking; public lighting; proposed foul sewer works along Back Road and Kinsealy Lane including upgrades to existing storage tank to provide pumping station on Kinsealy Lane, and all associated engineering and site works necessary to facilitate the development."

Badgers

In relation to badgers, the clearance of hedgerow poses the risk of the removal of the badgers' home burrow and the associated burrows (all of which are known as setts) that are used seasonally or occasionally throughout the year. In winter, this is especially risky if the sett is not identified before hedgerow removal operations, as this is the time when badger cubs are born.

In the classification used in this report, setts are considered to fall into four categories, which are best elaborated by long-term studies but can be interpreted to a relatively good accuracy in terms of status based on basic observations.

The basic sett type within which badgers are typically present throughout the year is the main sett. This is almost always the sett within which cubs are born. Bedding outside the entrance to these setts often identifies their use as such and paw prints and dung pits or latrines nearby also assist in their categorisation. There are typically a number of entrances to a main sett, some of which may be disused. Paths leading from the main sett are often very easy to trace for some distance.

Annexe setts are similar in construction to main setts and are typically accessed by a number of entrances. They are often discernibly connected to a main sett by well-worn paths, which is within

150 metres of the annexe sett. Badgers do not necessarily use this type of sett throughout the year and they may be inactive at the time of any short-term study.

Subsidiary setts are again not always active throughout the year. There may be a number of entrances to the sett and they are not clearly associated with any other sett.

The last type of sett, the outlier sett, may only have one entrance and has no path leading to it. This type of sett is only sporadically used and may even be in areas subject to flooding or seasonally unsuitable to badger use. These setts may be overlooked if they have remained inactive for several weeks and this may be true of such setts in early winter during which time this survey was carried out.

Setts may be under threat from construction if they lie directly in the footprint of a building, cabling or a new road. Setts outside of this land take area may also be threatened with damage from the normal activities of the heavy plant equipment required to build the scheme. For example, if a badger sett entrance were located outside of the land take but led to a system of tunnels that lay under the working area of the heavy plant, there is a clear risk that the tunnels would be crushed under the repeated movement of equipment.

These tunnels may occasionally go two metres or deeper underground but are also liable to surface to shallower depth to avoid rocky substrate or water. Thus, badger setts may be affected by the immediate impact upon them from the excavation and removal of the soil within which they are established or by the indirect destruction of tunnels that lie under the construction corridor of the road or building.

The population of badgers in Ireland has been revised downwards in recent years as badger social groups are now considered to be smaller than in original assessments undertaken and this number has reduced as a consequence of the Department of Agriculture activities in culling. Areas where agriculture is of less intensity may provide safer conditions for badgers in terms of state control measures, but urban areas create a risk of interference that may be more persistent than in rural areas.

Nonetheless, badgers survive in many urban areas including public parks, gardens, along the rivers in built-up areas or in the grounds of schools, colleges, convents etc. Urban badgers would appear to accept a higher level of disturbance than rural badgers and may even be found under patios and sheds and with one case of occupancy of a disused house in Dublin.

Bats

A speedy and productive means of determining the bat fauna within a site is to walk the entire site concerned, paying attention to all hedgerow, woodland, watercourses, fence lines, paths etc. with the aid of an ultrasonic receiver ("bat detector"). Bats may be affected through roost loss, loss of feeding and interruption to their ability to exploit different roosts and different feeding areas.

Methodology

Badgers

Badger surveying was undertaken on the following dates in 2019:

31st July to 8th August, 8th October and 11th November.

Surveying involved a number of visits and different levels of assessment. The initial assessment involved a visual examination of a potential sett close to the main avenue of Auburn House accompanied by a motion-activated camera assessment of the sett. This was followed up by a more complete evaluation of the site in October where the grounds were more thoroughly checked for badger signs and setts. The final evaluation in November was undertaken to confirm that features noted during other ecological surveys were or were not badger setts and signs.

Bats

Bat surveying was carried out by means of a number of methods over a number of dates: 29th May (sunset 21.39 hours, sunrise 05.05 hours), 27th June (sunset 21.57 hours, sunrise 04.58 hours), 8th October and 11th November.

The first two dates covered the grounds of Little Auburn (29th May) and Auburn House (27th June). These were bat detector surveys which included dusk and dawn assessments of suitable potential roosts in addition to a walked transect to evaluate the bat abundance and diversity within the two sites. The buildings at Little Auburn were also checked in late June.

Trees were examined during the June assessment in conjunction with the bat detector survey.

Equipment employed for the bat survey included a Premium fiberscope, a high-powered torch, an Echometer 3 (EM3) heterodyne and time expansion detector and a static Songmeter2Bat+ (SM2) monitor placed at Little Auburn in May and Auburn House in June.

Signals from the SM2 monitor and the EM3 were analysed with Kaleidoscope both using automatic identification and manual confirmation of signals of special interest and to ensure valid identification.

Buildings at Auburn House were examined on 8th October. This included all outbuildings and the upper levels and attics of the main house. An examination of trees within the grounds was also undertaken on 8th October and 11th November 2019.

Data from Bat Conservation Ireland and all previous records from the surveyor were considered for a complete picture of bat distribution over a longer timescale.

Results

Badgers

Badger setts within the grounds of Auburn House and Little Auburn

A number of badger setts were noted close to Auburn House including close to the main driveway and within the woodland behind the house. Two setts were present close to the house, one of which was monitored for any evidence of badger entry or emergence for one week in summer.

There were two very minor badger setts within the woodland showing limited historical usage based on how overgrown the setts are and how undeveloped the entrances are. A larger sett was noted within the wood close to the northwestern corner. This sett is very close to a meeting place for night-time human activity and is likely to have been rendered inactive by this disturbance.

No setts were active within the grounds of Auburn House or Little Auburn. No badger latrines or dung pits were noted within the grounds. There were some possible foraging signs, but these were not indisputable and could also be made by foxes or other mammals or birds. There are a number of trails in the land surrounding the stream south of Auburn House that may be evidence of badgers but again, there were no fresh indications of badgers and it is therefore possible that these could be made by other mammals (foxes or dogs).

Badgers are present within the grounds of Malahide Castle and it is probable that there would be movement between these two areas.



Badger setts at Auburn House and Little Auburn

No sett was active based on a lack of evidence of badger activity in the period July to November 2019. During night-time survey work, no badgers were seen or heard in May or June 2019. The largest sett was in the northwestern area of the wood at Auburn House (1). The sett monitored by a camera in close to the House (2). The setts at (3) are undeveloped and were probably inactive during this study in 2019. Tracks in the area east of the lane and north of the stream were possibly badger tracks but there was no recent evidence of feeding or commuting.

Bat activity at Auburn Malahide 2019

Roosts within Auburn House and Little Auburn

There are signs of bats within the outbuildings / upper loft of former stable buildings. These are probably brown long-eared bat signs as well as possible pipistrelle signs. There is potential for roosts in mature trees such as the beech trees at the moat near the northern corner of the houses within the grounds of Auburn House.

No bats were evident within the main house or Little Auburn. There are considerable numbers of bees within the attic of Auburn House. While this suggests a suitable temperature for bats, there were no easily discernible signs of bats (the presence of the bees made full examination too risky).

Species of bat noted

Common pipistrelle

This species was present through the site and was noted on all survey occasions. In May 2019, a procession of bats was noted returning to a house neighbouring Little Auburn. This was most probably a maternity roost in 2019.

Soprano pipistrelle

This species was noted through the study but was overall less widespread than Common pipistrelle. Soprano pipistrelle activity was noted close to Auburn House prior to sunrise on 28th June 2019 (04.58 hours). This suggests that there is a soprano pipistrelle roost

Leisler's bat

This species was noted throughout the site in May in particular and was less in evidence in June. There was high activity southeast of Auburn House in May (concentrated feeding by a maximum of two individuals within one field).

Natterer's bat

Myotis bat activity was noted on several occasions within the grounds of Auburn House. Much of this activity was noted south of Auburn House close to the moat and in the orchard. One bat was seen to feed repeatedly at a mature broadleaf tree. This species was also noted feeding at other trees in the orchard.

Brown long-eared bat

No brown long-eared bats were noted during the active survey, but a small number of signals were noted by the static monitors within the site in May 2019. During the visual inspection, evidence of brown long-eared bat feeding activity was noted in the attic / loft of the stable buildings.

Potential impacts

Badgers

- **Reduction in cover and increase in lighting affecting commuting badgers**

Badgers most commonly cross through sites close to cover (hedgerow, treelines, walls) and avoid bright lighting, humans and dogs. The development will introduce houses, lighting, people and their pets. All of this will reduce feeding opportunities and commuting opportunities for badgers. There are several setts within the grounds surrounding Auburn House. These setts would not be removed by the proposal.

The movement of badgers through the site and between sites may be hampered by the proposed development.

Bats

- **Removal of trees may remove roosts and place roosting bats at risk**

Bats roost in trees, in addition to buildings, walls and other structures. Tree removal creates the potential for roost loss. This is more critical if bats are present at the time of felling. Felling may place a bat at risk if it has not sufficient opportunity to become active and vacate a tree. This is more likely to occur when temperatures are low (6°C, for example). Bats may be killed or injured by the felling process, by a chainsaw or by crushing when a limb or bark is moved as the tree moves prior to or during felling or when striking the ground.

- **House demolition may remove roost sites for individual bats**

While there were no bats evident in 2019, there is potential for bats within the buildings proposed for removal as bats move in and out of buildings. Signs of bats are most obvious when there are large numbers of bats and individual bats may be overlooked without considerable effort (including tile / slate removal, examination of wall cavities etc.).

- **Lighting may reduce value of area to light-sensitive bat species**

Lighting is disruptive to all bat species if near or in a roost and will also affect feeding and commuting of light sensitive bat species. Natterer's bats and brown long-eared bats are the more light-sensitive species of the assemblage noted in this assessment while even pipistrelles and Leisler's bats avoid direct light.

Mitigation

Vegetation cover along the perimeter of the site to allow movement of badgers and bats.

Planting along the perimeter of the development shall ensure that there is potential for movement of badgers through the site by providing cover from human observations. The main areas are the southern entrance area and the area to the western area of the site (the southwestern corner of the woods) to ensure cover and allow badgers to travel through the site.

Lighting control

Lighting must be managed to ensure that mature trees are unlit, and that lighting does not overspill into green areas where it is unnecessary. Lighting should not exceed 3 lux away from areas where street and house lighting are essential. No lighting of tree canopies shall occur.

Evaluation of lighting following construction

A bat specialist shall examine the lighting and planting upon completion to ensure that lighting provides for access for bats to the woodland. Where there are no suitable access areas, measures to create easier movement of bats through the site shall be introduced through modifications to cowl, planting or other options.

Retention of trees as primary option

Tree felling must be undertaken where there is no alternative for the project. The preferred option must be to retain any mature tree and to prioritise trees and their root systems.

Checking of Trees for Bats Prior To / During Felling or Surgery where this is essential

Where there is no alternative to felling or removal of limbs of mature trees, an assessment for the presence of bats must be undertaken. Tree felling and surgery must avoid the summer months to protect nesting birds. At all other times, it should be possible to assess for bats provided that full access to any tree is available to the bat specialist.

If any buildings (walls etc.) are to be removed or modified, including re-pointing, a bat specialist shall ensure that bats are protected.

Bat boxes

12 Schwegler bat boxes of varying design shall be erected within the remaining woodland to provide a variety of suitable roost sites. These boxes must be away from lighting and shall be no lower than 3 metres from ground level.



Transect covered on 29th May 2019 and on to sunrise of 30th May 2019



Bat data within the site including the field and the gardens of Auburn Little 29 May 2019

Legend

White disc	Common pipistrelle	Blue paddle	Soprano Pipistrelle
Blue paddle with star insert	Soprano Pipistrelle and Leisler's bat		
Yellow paddle	Leisler's bat	Yellow paddle with star insert	Common pipistrelle and Leisler's bat



Bat data at Little Auburn 29 May 2019 (close-up of the previous figure)

Legend

White disc	Common pipistrelle	Blue paddle	Soprano Pipistrelle
Yellow paddle	Leisler's bat		
Yellow paddle with star insert	Common pipistrelle and Leisler's bat		
Blue paddle with star insert	Soprano Pipistrelle and Leisler's bat		
Red paddle with "3"	Common and soprano Pipistrelles and Leisler's bat at same location		



Bat activity prior to sunrise on 30 May 2019 at Auburn, Streamstown, Malahide

Legend

White disc

Common pipistrelle

Blue paddle

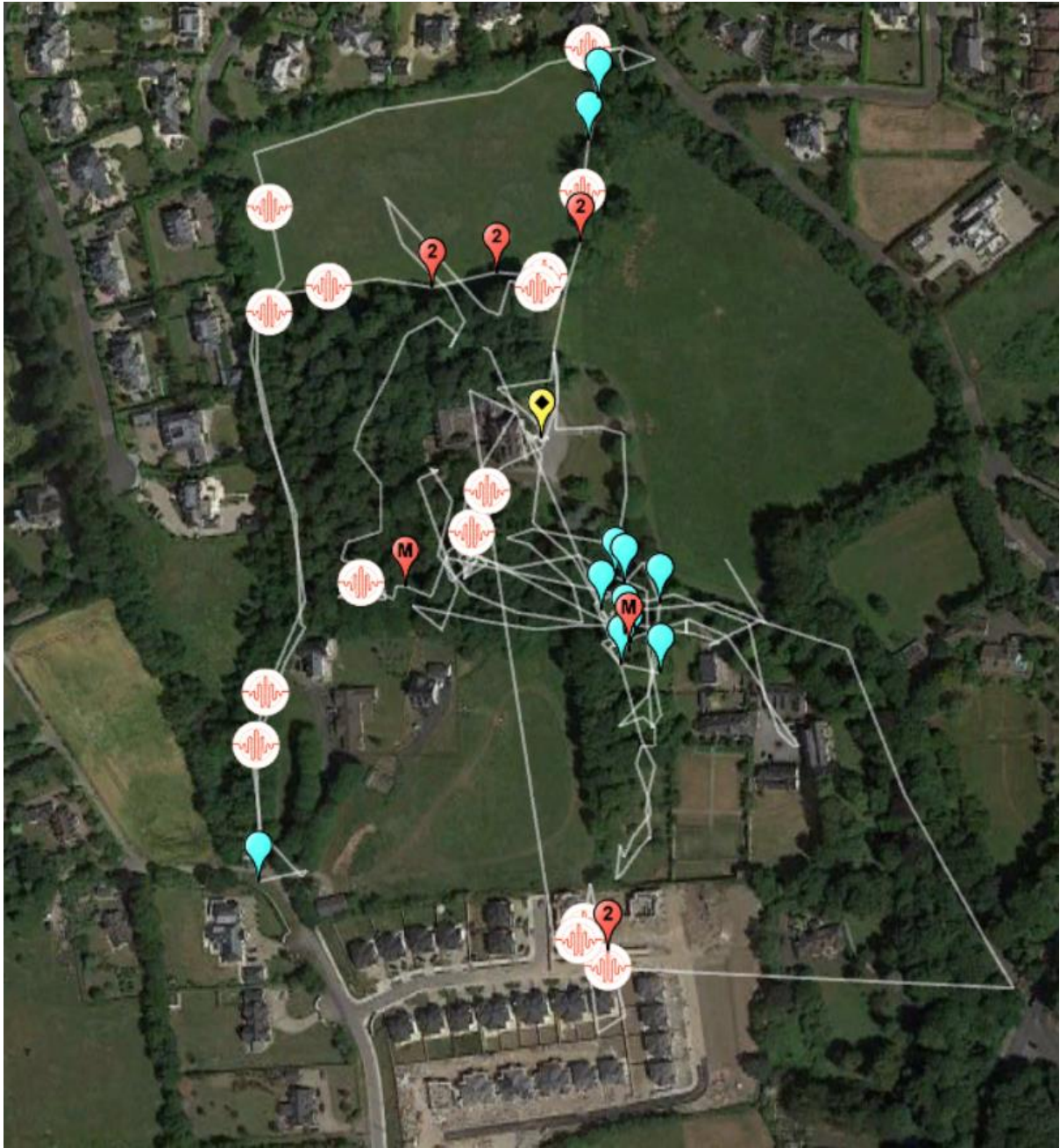
Soprano Pipistrelle

Yellow paddle

Leisler's bat



Transect covered on Thursday 27th June 2019



Bat activity on Thursday 27th June 2019 to sunrise 28th June 2019



Layout of proposed development

Bat data from EM3 recordings at Auburn Little and field Malahide 29 May to 30 May 2019:

(sunset 21.39 hours, sunrise 05.05 hours)

DATE	TIME	AUTO ID	MANUAL ID
29/05/2019	21:52:10	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
29/05/2019	22:01:11	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:01:42	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:02:12	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:02:42	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	22:05:12	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:05:42	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:06:12	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:06:42	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:07:13	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:07:43	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:08:43	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:09:43	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:13:14	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:13:44	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:14:14	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:15:14	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:15:44	COMMON PIPISTRELLE	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	22:16:14	COMMON PIPISTRELLE	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	22:16:44	COMMON PIPISTRELLE	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	22:17:14	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	22:17:44	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	22:18:15	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	22:18:45	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:19:15	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:19:45	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:20:45	COMMON PIPISTRELLE	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	22:24:16	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE LEISLER'S BAT
29/05/2019	22:24:46	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE LEISLER'S BAT
29/05/2019	22:25:16	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
29/05/2019	22:26:16	MYBR	Noise
29/05/2019	22:26:46	LEISLER'S BAT	Noise
29/05/2019	22:28:16	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:28:47	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:29:17	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:29:47	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:30:17	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:30:47	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:31:17	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE LEISLER'S BAT
29/05/2019	22:31:47	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:54:52	PINA	COMMON PIPISTRELLE
29/05/2019	22:57:52	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
29/05/2019	22:58:22	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:59:53	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	23:02:23	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	23:02:53	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	23:03:23	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	23:03:53	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	23:04:23	COMMON PIPISTRELLE	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	23:04:54	COMMON PIPISTRELLE	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	23:05:24	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	23:05:54	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	23:06:24	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	23:06:54	LEISLER'S BAT	SOPRANO PIPISTRELLE LEISLER'S BAT

29/05/2019	23:07:24	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	23:07:54	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	23:08:24	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	23:08:54	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	23:09:25	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	23:09:55	LEISLER'S BAT	SOPRANO PIPISTRELLE LEISLER'S BAT
29/05/2019	23:10:25	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	23:10:55	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	23:12:25	COMMON PIPISTRELLE	COMMON PIPISTRELLE SOPRANO PIPISTRELLE LEISLER'S BAT
29/05/2019	23:13:55	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	23:16:56	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	23:17:26	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
29/05/2019	23:17:56	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
29/05/2019	23:18:26	NoID	SOPRANO PIPISTRELLE
29/05/2019	23:19:57	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
29/05/2019	23:20:27	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	23:24:28	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	04:26:57	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:27:27	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:29:57	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:35:59	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:36:59	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:37:29	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:37:59	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:45:00	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE

Bat data from SM2 placed at Little Auburn garden 29 May to 30 May 2019

DATE	TIME	AUTO ID	MANUAL ID
29/05/2019	22:01:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:02:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:02:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:03:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:03:30	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	22:06:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:07:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:09:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:09:30	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:10:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:10:30	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:11:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:13:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:13:30	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:14:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:15:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:15:30	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:16:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:16:30	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:17:30	NoID	COMMON PIPISTRELLE
29/05/2019	22:19:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:19:30	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:20:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:20:30	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:21:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:21:30	LEISLER'S BAT	COMMON PIPISTRELLE LEISLER'S BAT
29/05/2019	22:22:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:23:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:24:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
29/05/2019	22:24:30	COMMON PIPISTRELLE	

29/05/2019	22:27:30	NoID	
29/05/2019	22:28:00	LEISLER'S BAT	
29/05/2019	22:28:30	LEISLER'S BAT	
29/05/2019	22:29:30	LEISLER'S BAT	
29/05/2019	22:30:00	LEISLER'S BAT	
29/05/2019	22:32:00	LEISLER'S BAT	
29/05/2019	22:34:00	LEISLER'S BAT	
29/05/2019	22:34:30	LEISLER'S BAT	
29/05/2019	22:35:00	LEISLER'S BAT	
29/05/2019	22:40:00	LEISLER'S BAT	
29/05/2019	22:41:30	COMMON PIPISTRELLE	
29/05/2019	22:42:00	COMMON PIPISTRELLE	
29/05/2019	22:48:40	SOPRANO PIPISTRELLE	
29/05/2019	22:49:10	COMMON PIPISTRELLE	
29/05/2019	22:50:10	COMMON PIPISTRELLE	
29/05/2019	22:50:40	LEISLER'S BAT	
29/05/2019	22:51:10	COMMON PIPISTRELLE	
29/05/2019	22:52:10	COMMON PIPISTRELLE	
29/05/2019	22:53:10	COMMON PIPISTRELLE	
29/05/2019	22:54:10	COMMON PIPISTRELLE	
29/05/2019	22:56:40	COMMON PIPISTRELLE	
29/05/2019	22:59:10	COMMON PIPISTRELLE	
29/05/2019	23:00:10	LEISLER'S BAT	
29/05/2019	23:03:30	COMMON PIPISTRELLE	
29/05/2019	23:05:30	LEISLER'S BAT	
29/05/2019	23:06:30	LEISLER'S BAT	
29/05/2019	23:07:00	SOPRANO PIPISTRELLE	
29/05/2019	23:11:00	LEISLER'S BAT	
29/05/2019	23:12:30	COMMON PIPISTRELLE	
29/05/2019	23:15:00	COMMON PIPISTRELLE	
29/05/2019	23:15:30	LEISLER'S BAT	
29/05/2019	23:16:00	LEISLER'S BAT	
29/05/2019	23:17:00	COMMON PIPISTRELLE	
29/05/2019	23:17:30	SOPRANO PIPISTRELLE	
29/05/2019	23:18:00	COMMON PIPISTRELLE	
29/05/2019	23:18:30	SOPRANO PIPISTRELLE	
29/05/2019	23:19:30	SOPRANO PIPISTRELLE	
29/05/2019	23:20:00	SOPRANO PIPISTRELLE	
29/05/2019	23:20:30	SOPRANO PIPISTRELLE	
29/05/2019	23:22:00	LEISLER'S BAT	
29/05/2019	23:22:30	NoID	
29/05/2019	23:23:00	SOPRANO PIPISTRELLE	
29/05/2019	23:26:00	SOPRANO PIPISTRELLE	
29/05/2019	23:26:30	COMMON PIPISTRELLE	
29/05/2019	23:27:30	COMMON PIPISTRELLE	
29/05/2019	23:28:30	COMMON PIPISTRELLE	
29/05/2019	23:29:00	NoID	
29/05/2019	23:30:00	SOPRANO PIPISTRELLE	
29/05/2019	23:30:30	SOPRANO PIPISTRELLE	
29/05/2019	23:34:00	COMMON PIPISTRELLE	
29/05/2019	23:35:30	PINA	
29/05/2019	23:38:00	COMMON PIPISTRELLE	
29/05/2019	23:39:00	LEISLER'S BAT	
29/05/2019	23:39:30	LEISLER'S BAT	
29/05/2019	23:43:00	SOPRANO PIPISTRELLE	
29/05/2019	23:43:30	COMMON PIPISTRELLE	
29/05/2019	23:44:00	COMMON PIPISTRELLE	
29/05/2019	23:45:00	SOPRANO PIPISTRELLE	

29/05/2019	23:45:30	LEISLER'S BAT	
29/05/2019	23:46:00	LEISLER'S BAT	
29/05/2019	23:47:30	SOPRANO PIPISTRELLE	
29/05/2019	23:48:00	LEISLER'S BAT	
29/05/2019	23:48:30	NoID	
29/05/2019	23:51:30	PINA	
29/05/2019	23:52:00	COMMON PIPISTRELLE	
29/05/2019	23:53:30	SOPRANO PIPISTRELLE	
29/05/2019	23:54:30	COMMON PIPISTRELLE	
29/05/2019	23:55:00	COMMON PIPISTRELLE	
29/05/2019	23:55:30	SOPRANO PIPISTRELLE	
29/05/2019	23:59:00	COMMON PIPISTRELLE	
29/05/2019	23:59:30	COMMON PIPISTRELLE	
30/05/2019	00:00:00	SOPRANO PIPISTRELLE	
30/05/2019	00:00:30	SOPRANO PIPISTRELLE	
30/05/2019	00:01:00	SOPRANO PIPISTRELLE	
30/05/2019	00:02:00	SOPRANO PIPISTRELLE	
30/05/2019	00:02:30	SOPRANO PIPISTRELLE	
30/05/2019	00:04:00	SOPRANO PIPISTRELLE	
30/05/2019	00:04:30	COMMON PIPISTRELLE	
30/05/2019	00:09:30	SOPRANO PIPISTRELLE	
30/05/2019	00:11:00	SOPRANO PIPISTRELLE	
30/05/2019	00:20:30	COMMON PIPISTRELLE	
30/05/2019	00:24:00	SOPRANO PIPISTRELLE	
30/05/2019	00:29:10	COMMON PIPISTRELLE	
30/05/2019	00:30:10	COMMON PIPISTRELLE	
30/05/2019	00:31:10	SOPRANO PIPISTRELLE	
30/05/2019	00:31:40	COMMON PIPISTRELLE	
30/05/2019	00:34:10	COMMON PIPISTRELLE	
30/05/2019	00:37:10	SOPRANO PIPISTRELLE	
30/05/2019	00:38:10	COMMON PIPISTRELLE	
30/05/2019	00:39:10	COMMON PIPISTRELLE	
30/05/2019	00:44:10	COMMON PIPISTRELLE	
30/05/2019	00:48:40	LEISLER'S BAT	
30/05/2019	00:50:10	COMMON PIPISTRELLE	
30/05/2019	00:50:40	SOPRANO PIPISTRELLE	
30/05/2019	00:52:10	LEISLER'S BAT	
30/05/2019	00:52:40	SOPRANO PIPISTRELLE	
30/05/2019	00:53:10	SOPRANO PIPISTRELLE	
30/05/2019	00:54:10	SOPRANO PIPISTRELLE	
30/05/2019	00:54:40	SOPRANO PIPISTRELLE	
30/05/2019	00:55:10	SOPRANO PIPISTRELLE	
30/05/2019	00:57:10	SOPRANO PIPISTRELLE	
30/05/2019	00:59:10	LEISLER'S BAT	
30/05/2019	01:00:10	SOPRANO PIPISTRELLE	
30/05/2019	01:01:10	SOPRANO PIPISTRELLE	
30/05/2019	01:01:40	SOPRANO PIPISTRELLE	
30/05/2019	01:02:10	SOPRANO PIPISTRELLE	
30/05/2019	01:05:40	COMMON PIPISTRELLE	
30/05/2019	01:06:10	COMMON PIPISTRELLE	
30/05/2019	01:06:40	COMMON PIPISTRELLE	COMMON PIPISTRELLE SOPRANO PIPISTRELLE
30/05/2019	01:08:40	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:10:40	MYBR	BROWN LONG-EARED BAT
30/05/2019	01:11:10	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:12:10	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:14:10	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:15:50	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	01:16:50	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE

30/05/2019	01:17:20	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	01:18:20	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	01:19:50	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:21:20	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:21:50	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:22:20	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:25:50	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:26:50	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:29:50	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	01:30:50	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	01:31:50	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:32:20	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	01:32:50	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	01:34:20	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:34:50	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:44:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:45:00	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	01:45:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:46:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:47:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:48:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:49:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:50:30	SOPRANO PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:51:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:52:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	01:53:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:53:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:54:00	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	01:55:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:57:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	01:58:30	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	01:59:00	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	02:03:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	02:04:00	PINA	COMMON PIPISTRELLE
30/05/2019	02:05:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	02:11:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:13:00	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	02:13:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:17:00	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	02:17:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	02:19:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:19:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:20:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:21:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:22:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:23:00	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	02:24:30	SOPRANO PIPISTRELLE	COMMON PIPISTRELLE SOPRANO PIPISTRELLE
30/05/2019	02:25:00	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	02:27:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:33:40	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:35:40	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:36:10	COMMON PIPISTRELLE	
30/05/2019	02:36:40	SOPRANO PIPISTRELLE	
30/05/2019	02:37:10	SOPRANO PIPISTRELLE	
30/05/2019	02:37:40	SOPRANO PIPISTRELLE	
30/05/2019	02:40:40	COMMON PIPISTRELLE	
30/05/2019	02:41:40	SOPRANO PIPISTRELLE	
30/05/2019	02:45:30	COMMON PIPISTRELLE	

30/05/2019	02:47:00	COMMON PIPISTRELLE	
30/05/2019	02:49:30	BROWN LONG-EARED BAT	BROWN LONG-EARED BAT
30/05/2019	02:51:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:51:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:52:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:52:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:53:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	02:53:30	PINA	COMMON PIPISTRELLE
30/05/2019	02:55:30	PINA	COMMON PIPISTRELLE
30/05/2019	02:59:00	SOPRANO PIPISTRELLE	
30/05/2019	02:59:30	SOPRANO PIPISTRELLE	
30/05/2019	03:00:00	COMMON PIPISTRELLE	
30/05/2019	03:07:00	COMMON PIPISTRELLE	
30/05/2019	03:10:30	COMMON PIPISTRELLE	
30/05/2019	03:11:00	COMMON PIPISTRELLE	
30/05/2019	03:11:30	COMMON PIPISTRELLE	
30/05/2019	03:12:00	COMMON PIPISTRELLE	
30/05/2019	03:12:30	COMMON PIPISTRELLE	
30/05/2019	03:13:00	COMMON PIPISTRELLE	
30/05/2019	03:13:30	COMMON PIPISTRELLE	
30/05/2019	03:14:00	COMMON PIPISTRELLE	
30/05/2019	03:14:30	COMMON PIPISTRELLE	
30/05/2019	03:15:00	COMMON PIPISTRELLE	
30/05/2019	03:15:30	PINA	COMMON PIPISTRELLE
30/05/2019	03:16:00	PINA	COMMON PIPISTRELLE
30/05/2019	03:16:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	03:19:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	03:20:00	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	03:20:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE LEISLER'S BAT
30/05/2019	03:21:00	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	03:22:00	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	03:22:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	03:24:00	SOPRANO PIPISTRELLE	COMMON PIPISTRELLE SOPRANO PIPISTRELLE
30/05/2019	03:24:30	SOPRANO PIPISTRELLE	COMMON PIPISTRELLE SOPRANO PIPISTRELLE
30/05/2019	03:27:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	03:30:10	NoID	COMMON PIPISTRELLE LEISLER'S BAT
30/05/2019	03:30:40	COMMON PIPISTRELLE	COMMON PIPISTRELLE LEISLER'S BAT
30/05/2019	03:31:10	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	03:31:40	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	03:32:10	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	03:33:40	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	03:34:10	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	03:36:40	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	03:37:10	COMMON PIPISTRELLE	
30/05/2019	03:37:40	COMMON PIPISTRELLE	
30/05/2019	03:38:40	LEISLER'S BAT	
30/05/2019	03:39:10	COMMON PIPISTRELLE	
30/05/2019	03:39:40	PINA	
30/05/2019	03:42:00	COMMON PIPISTRELLE	
30/05/2019	03:44:00	COMMON PIPISTRELLE	
30/05/2019	03:44:30	COMMON PIPISTRELLE	
30/05/2019	03:48:30	COMMON PIPISTRELLE	
30/05/2019	03:49:00	COMMON PIPISTRELLE	
30/05/2019	03:51:30	COMMON PIPISTRELLE	
30/05/2019	03:52:00	SOPRANO PIPISTRELLE	
30/05/2019	03:52:30	COMMON PIPISTRELLE	
30/05/2019	03:53:00	COMMON PIPISTRELLE	
30/05/2019	03:53:30	COMMON PIPISTRELLE	

30/05/2019	03:54:00	COMMON PIPISTRELLE	
30/05/2019	03:54:30	SOPRANO PIPISTRELLE	
30/05/2019	03:55:00	SOPRANO PIPISTRELLE	
30/05/2019	03:55:30	SOPRANO PIPISTRELLE	
30/05/2019	03:56:00	SOPRANO PIPISTRELLE	
30/05/2019	03:56:30	SOPRANO PIPISTRELLE	
30/05/2019	03:57:00	COMMON PIPISTRELLE	
30/05/2019	03:57:30	COMMON PIPISTRELLE	
30/05/2019	03:58:00	COMMON PIPISTRELLE	
30/05/2019	03:58:30	COMMON PIPISTRELLE	
30/05/2019	03:59:00	COMMON PIPISTRELLE	
30/05/2019	03:59:30	SOPRANO PIPISTRELLE	
30/05/2019	04:00:00	COMMON PIPISTRELLE	
30/05/2019	04:00:30	COMMON PIPISTRELLE	
30/05/2019	04:01:00	COMMON PIPISTRELLE	
30/05/2019	04:01:30	COMMON PIPISTRELLE	
30/05/2019	04:02:30	SOPRANO PIPISTRELLE	
30/05/2019	04:03:30	COMMON PIPISTRELLE	
30/05/2019	04:04:30	SOPRANO PIPISTRELLE	
30/05/2019	04:07:30	SOPRANO PIPISTRELLE	
30/05/2019	04:08:00	LEISLER'S BAT	
30/05/2019	04:09:30	LEISLER'S BAT	
30/05/2019	04:10:00	LEISLER'S BAT	
30/05/2019	04:13:00	LEISLER'S BAT	
30/05/2019	04:14:30	LEISLER'S BAT	
30/05/2019	04:28:30	LEISLER'S BAT	
30/05/2019	04:29:40	LEISLER'S BAT	
30/05/2019	04:30:10	LEISLER'S BAT	
30/05/2019	04:31:10	COMMON PIPISTRELLE	
30/05/2019	04:32:40	COMMON PIPISTRELLE	
30/05/2019	04:33:40	LEISLER'S BAT	
30/05/2019	04:37:40	COMMON PIPISTRELLE	
30/05/2019	04:45:10	SOPRANO PIPISTRELLE	

Bat data from SM2 starting at gate of Auburn Little and moving to the field

DATE	TIME	AUTO ID	MANUAL ID
29/05/2019	22:03:34	BROWN LONG-EARED BAT	SOPRANO PIPISTRELLE
29/05/2019	22:07:34	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:08:04	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:08:34	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:16:34	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:17:04	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:18:04	NoID	LEISLER'S BAT
29/05/2019	22:19:45	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:23:45	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:26:15	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:28:15	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:31:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:32:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:32:30	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:33:00	LEISLER'S BAT	LEISLER'S BAT
29/05/2019	22:35:00	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	01:00:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	03:18:00	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE

30/05/2019	03:59:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:04:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:07:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:07:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:08:00	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:12:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:16:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:17:00	PINA	COMMON PIPISTRELLE
30/05/2019	04:19:30	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
30/05/2019	04:20:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:21:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:22:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:23:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:23:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:24:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:25:00	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:25:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:26:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:27:00	COMMON PIPISTRELLE	COMMON PIPISTRELLE
30/05/2019	04:29:00	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:29:30	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:30:00	LEISLER'S BAT	LEISLER'S BAT
30/05/2019	04:30:30	LEISLER'S BAT	LEISLER'S BAT

Bat data from SM2 at Auburn House 27th June 2019: (sunset 21.57 hours, sunrise 04.58 hours),

DATE	TIME	AUTO ID	MANUAL ID
27/06/2019	22:06:36	MYBR	COMMON PIPISTRELLE
27/06/2019	22:16:36	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	22:30:36	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	23:46:58	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
27/06/2019	23:47:28	SOPRANO PIPISTRELLE	MYOTIS SOPRANO PIPISTRELLE
27/06/2019	23:47:58	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	23:48:58	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	23:49:28	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:19:09	MYBR	MYOTIS
28/06/2019	00:19:39	MYBR	MYOTIS
28/06/2019	00:30:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:31:09	MYBR	COMMON PIPISTRELLE
28/06/2019	00:31:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:32:09	COMMON PIPISTRELLE	COMMON PIPISTRELLE
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28/06/2019	00:38:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:39:09	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:40:09	COMMON PIPISTRELLE	COMMON PIPISTRELLE

28/06/2019	00:40:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
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28/06/2019	00:41:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:42:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
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28/06/2019	00:44:09	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:44:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:45:09	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:45:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:46:09	MYBR	MYOTIS COMMON PIPISTRELLE
28/06/2019	00:47:09	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:47:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:48:09	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:48:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:49:09	MYBR	MYOTIS COMMON PIPISTRELLE
28/06/2019	00:49:39	COMMON PIPISTRELLE	MYOTIS COMMON PIPISTRELLE
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28/06/2019	00:52:09	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	00:54:39	NoID	MYOTIS
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28/06/2019	01:06:20	MYBR	MYOTIS
28/06/2019	01:07:50	MYBR	MYOTIS
28/06/2019	01:08:20	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
28/06/2019	01:08:50	MYBR	NATTERER'S BAT
28/06/2019	01:13:50	SOPRANO PIPISTRELLE	MYOTIS COMMON PIPISTRELLE
28/06/2019	01:34:50	NATTERER'S BAT	NATTERER'S BAT
28/06/2019	01:35:50	MYBR	MYOTIS
28/06/2019	01:40:20	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	01:40:50	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	01:41:20	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	01:41:50	COMMON PIPISTRELLE	COMMON PIPISTRELLE
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28/06/2019	01:59:01	NoID	MYOTIS
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28/06/2019	02:07:01	MYBR	MYOTIS
28/06/2019	02:07:31	COMMON PIPISTRELLE	MYOTIS COMMON PIPISTRELLE
28/06/2019	02:08:31	COMMON PIPISTRELLE	COMMON PIPISTRELLE
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28/06/2019	02:17:31	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	02:18:01	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	02:18:31	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
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28/06/2019	02:30:01	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	02:31:01	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	02:31:31	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	02:32:01	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	02:33:31	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	02:34:01	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	02:34:31	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	02:35:01	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	02:35:31	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
28/06/2019	02:36:01	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE

EM3 data from active survey

DATE	TIME	AUTO ID	MANUAL ID
27/06/2019	22:20:16	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
27/06/2019	22:20:47	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
27/06/2019	22:21:50	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
27/06/2019	22:22:20	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
27/06/2019	22:23:22	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
27/06/2019	22:30:30	LEISLER'S BAT	LEISLER'S BAT
27/06/2019	22:36:39	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	22:37:10	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	22:38:41	MYBR	NATTERER'S BAT
27/06/2019	22:40:13	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	22:53:33	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	22:54:36	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	22:55:07	SOPRANO PIPISTRELLE	COMMON PIPISTRELLE SOPRANO PIPISTRELLE
27/06/2019	22:55:37	SOPRANO PIPISTRELLE	COMMON PIPISTRELLE SOPRANO PIPISTRELLE
27/06/2019	22:56:38	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	22:57:40	PINA	COMMON PIPISTRELLE
27/06/2019	23:01:43	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	23:02:45	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
27/06/2019	23:05:17	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	23:08:52	COMMON PIPISTRELLE	COMMON PIPISTRELLE
27/06/2019	23:15:29	COMMON PIPISTRELLE	COMMON PIPISTRELLE

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27/06/2019	23:16:30	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
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27/06/2019	23:17:31	SOPRANO PIPISTRELLE	COMMON PIPISTRELLE SOPRANO PIPISTRELLE
28/06/2019	03:34:23	LEISLER'S BAT	LEISLER'S BAT
28/06/2019	03:41:30	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	03:50:12	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
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28/06/2019	03:55:46	MYBR	NATTERER'S BAT
28/06/2019	03:58:48	MYBR	NATTERER'S BAT
28/06/2019	04:00:21	MYBR	NATTERER'S BAT
28/06/2019	04:00:52	LEISLER'S BAT	LEISLER'S BAT
28/06/2019	04:02:53	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	04:05:24	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	04:05:54	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	04:10:59	MYBR	MYOTIS
28/06/2019	04:13:02	COMMON PIPISTRELLE	MYOTIS COMMON PIPISTRELLE
28/06/2019	04:13:32	MYBR	SOPRANO PIPISTRELLE LEISLER'S BAT
28/06/2019	04:14:02	MYBR	MYOTIS
28/06/2019	04:14:33	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
28/06/2019	04:15:05	MYBR	MYOTIS
28/06/2019	04:16:07	MYBR	MYOTIS
28/06/2019	04:17:08	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	04:18:09	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	04:18:40	COMMON PIPISTRELLE	COMMON PIPISTRELLE SOPRANO PIPISTRELLE
28/06/2019	04:20:42	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	04:21:13	NoID	COMMON PIPISTRELLE
28/06/2019	04:21:45	COMMON PIPISTRELLE	COMMON PIPISTRELLE
28/06/2019	04:27:53	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
28/06/2019	04:30:55	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE
28/06/2019	04:31:56	SOPRANO PIPISTRELLE	SOPRANO PIPISTRELLE

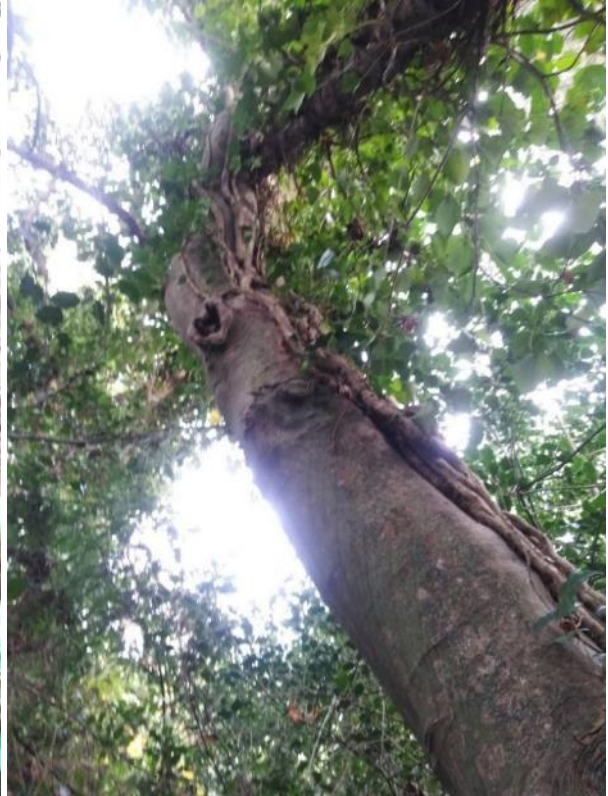


Bat assessment of buildings at Auburn House

No bats were noted within the house. Bees were present in the areas in which bats would normally be noted within an attic.



Bat assessment of former stable buildings and outbuildings at Auburn House (top and middle left) and at Little Auburn House and garage (middle right and bottom). Droppings were noted in two places within the barn and stable buildings.



Trees within the grounds with roost potential



Trees with roost potential including at the drain / moat area

There are numerous trees within the site with roost potential including the beech shown above. The stonework also offers roost potential, but no evidence of bats was noted



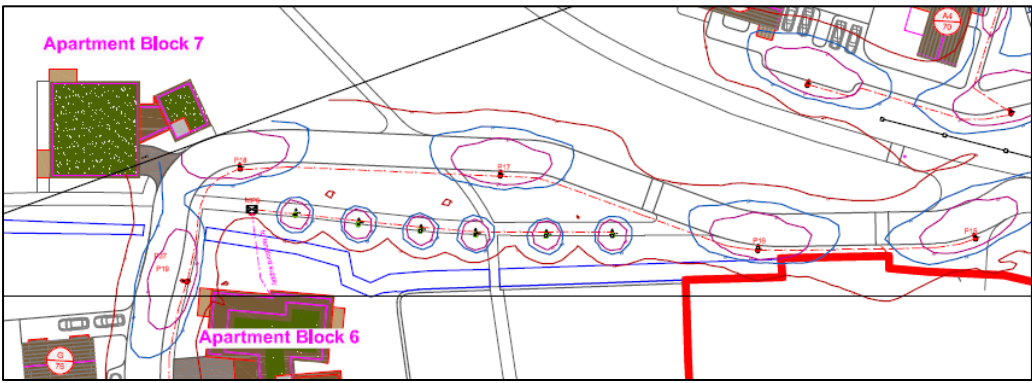
Badger setts within the site

There are several inactive setts within the wooded area surrounding Auburn House, but no sett was in use during the assessment in 2019.



Setts within the site (top)

Possible badger activity signs and homemade snare on the boundary wall (bottom right)



Lighting proposed for Auburn indicating the 1 and 3 lux isoluxes in the area surrounding the light stands. The proposal employs “full cut-off” lanterns and the wattage has been kept to the minimum available that still provides enough light to meet the ISEN Standard and Fingal County Council specifications. The lighting nearest woodland is highlighted to show measures to control and prevent light overspill.

The above is taken from the Sabre Electric Lighting Services Ltd. Public Lighting Layout – ISOLUX (SES 01820)