

Appendix 6.1 Bat and Bird Survey

Bats and Birds within the Proposed Development Site at Woodbrook, Shankill, County Dublin



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In the European Union, biodiversity conservation is enshrined within a single directive (European Communities (Birds and Natural Habitats) Regulations 2011) that is the of the former Birds Directive of 1979 and the Habitats Directive of 1992. Bats and birds are afforded varying degrees of protection under Irish and EU law. For bats, protection is relatively comprehensive with all Irish species protected under Annex IV of the Directive and with one species, the lesser horseshoe bat, further protected under Annex II. This species is not resident in Dublin and is mainly concentrated in a band of six counties along the west coast of the island.

Bat resting places and breeding places are protected and any actions that lead to their deterioration or destruction are an offence under the Wildlife Act unless a specific derogation has been sought in advance through the National Parks and Wildlife Service.

Bird protection is more complicated as some species are considered sufficiently abundant to allow killing for sport and recreation or to reduce crop damage, building deterioration or health risk. All birds and their nests are protected under the Wildlife Act within the officially designated nesting period; March 1st to August 31st

In the urban and suburban environment, the need to protect and enhance biodiversity may be challenging where the need to house and provide recreational facilities may involve the modification of the vegetation and landscape elements and may have an immediate effect upon the biodiversity of the area or of adjoining and surrounding areas. Birds may lose nest sites through hedgerow removal in addition to the feeding opportunities provided by the presence of vegetation and cover. Bats may also lose roost sites and feeding and commuting corridors that allow movement between good roost sites and good feeding areas and the network of roosts that bats avail of throughout the year.

Methodology

Bats

The site was examined on the following dates: 17th to 18th August 25th September and 3rd October 2018 for evidence of roosting, feeding and commuting bats. This was undertaken by a single surveyor within the site over the two dates and included a pre-dawn evaluation and three post-dusk evaluations.

The walked transect was undertaken along all hedgerow within the site and any bat activity was recorded with the assistance of an Echometer 3 (EM3) monitor and a static Songmeter2Bat+ (SM2) placed along hedgerow which was considered to have high feeding and commuting potential based on a visual inspection.

The survey commenced prior to sunset (and continued for approximately 1.5 hours and recommenced one hour prior to sunrise of the following morning (hours). All bat activity was noted, and the species of bat present was determined both based on field observations and by later examination of the recorded bat signals (from the EM3 and the SM2). Any bats observed prior to dawn were followed to determine their roost destination if possible. At this time, it is possible to identify roost sites of individual bats more easily than at any other time of night as bats undertake a circling of the roost site known as swarming prior to entry (on most occasions, bats may also enter immediately into a roost). Trees within the site were examined for their potential as roost sites in winter 2018/19 as this is a period when leaves are absent from broadleaf trees and it is more possible to locate cavities and crevices.

Birds

The site was examined over a series of three separate visits for bird composition and levels of activity and included two assessments during winter (5th January 2019 and 25th February 2019) and one in late summer (18th August 2018) to identify resident and migratory species within the site.

This involved a walkover of the site following each hedgerow, tree line, fence and boundary as well as a transect through the centre of the fields to identify any birds that may have been perched on the ground and less obvious to see. A separate bird assessment has also been undertaken of this site and is included within the application documentation.

Results

Bats

Species of bat noted to roost within the site

None

No bats emerged from or returned to any tree or structure within the site in August or September 2018. There were no active bat roosts noted within the site.

Species of bat noted feeding or commuting within the site in August / September 2018 during the active survey

Common Pipistrelle	<i>Pipistrellus pipistrellus</i>
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>
Leisler's bat	<i>Nyctalus leisleri</i>

The highest level of bat activity within the main site (behind the cemetery and St. James's Church) was of Common Pipistrelle. This species was encountered primarily along the western section of the site while bat activity at the golf course was almost entirely absent during the summer assessment.

Soprano Pipistrelle bat activity was lower within the site, but this was the only pipistrelle species noted prior to sunrise on 18th August 2019 and is likely to be roosting closer to the site than the Common Pipistrelles noted.

Leisler's bat activity was sparse both after sunset and prior to sunrise while the final bat noted was a Leisler's bat close to the church. The buildings associated with the church may be a roost for individual bats.

Feeding within the lands currently treated as part of the public park was relatively high

Table 1: Species of bat noted feeding or commuting within the site by the SM2 monitor in August / September 2018

Species	Scientific name	Abundance within the area	Abundance within Ireland
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	Abundant	Abundant
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	Very common	Abundant
Leisler's bat	<i>Nyctalus leisleri</i>	Common	Common

Bat activity within the site differed between the two sections under consideration. More bat activity was present within the fields that are adjoining the public park than the larger fields behind the Church of Ireland. Within the part of the site adjoining the park, common and Soprano Pipistrelle were noted repeatedly while there were no less than two Leisler's bats on several occasions and one individual for much of the period of observation.

The area proposed for development possesses a number of trees with bat roost potential. No bats were seen to emerge or return to any tree during this assessment.

Previous records from this area also include Natterer's bat south of the site (see Table 6). The house and outbuildings to the south may be a potential roost site. These are not part of this proposal.

Birds

The bird species noted within the site is given in Tables 2 and 3.

The site comprises farmland (some of which is somewhat overgrown and adjoining woodland cover) in addition to farmland that is managed similar to the connecting public park and only provides hedgerow as cover as the grass is subject to regular cutting and human and canine disturbance.

The bird fauna is relatively diverse with a variety of garden birds and farmland birds. In winter, there were curlew either flying over the site (15 individuals) or foraging within the field (8 curlew on 25th February). Feeding here is unusual given the dryness of the site overall. In winter there were also flocks of linnet (66 counted on 5th January), goldfinch (40 on 5th January) in addition to flocks of feral pigeon and large flocks of wood pigeon. Bullfinch were present in small numbers (6 together on 5th January).

Buzzards are present throughout the year and would appear to be nesting towards the southern end of the site. No nest was seen in August 2018 but there are sufficiently large trees to the south of the main field of the site to accommodate a nest that would be difficult to observe if the birds were away from the nest.

There are records of both barn owl and long-eared owl from the immediate area provided by Conservation Ranger Terry Doherty. These are:

1. A dead Long-eared owl noted on 2017 24th September River alleys Road near the Hackett Memorial Hall.
2. A second dead Long-eared owl was discovered again on River alleys Road in December 2018.
3. A Barn owl seen within the immediate area on 31st December 2016 at Crinken Church

Other bird observations provided by John Coveney, an ecologist resident in a nearby housing estate included Mediterranean gulls that are occasionally noted in the site and adjoining lands.



Plate 1: Trees with roost potential within the hedgerow while most of the site is exposed agricultural lands

Table 2: Bird species noted within the proposed development area August 2018

Species	Scientific name
Buzzard	<i>Buteo buteo</i>
Blackbird	<i>Turdus merula</i>
Dunnock	<i>Prunella modularis</i>
Robin	<i>Erithacus rubecula</i>
Blackcap	<i>Sylvia atricapilla</i>
Goldcrest	<i>Regulus regulus</i>
Rook	<i>Corvus frugilegus</i>
Blue Tit	<i>Cyanistes caeruleus</i>
Great Tit	<i>Parus ater</i>
Long-tailed tit	<i>Aegithalos caudatus</i>
Goldfinch	<i>Carduelis carduelis</i>
Chaffinch	<i>Fringilla coelebs</i>
House sparrow	<i>Passer domesticus</i>
Song Thrush	<i>Turdus philomelos</i>
Mistle Thrush	<i>Turdus viscivorus</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Hooded Crow	<i>Corvus cornix</i>
Jackdaw	<i>Corvus monedula</i>
Magpie	<i>Pica pica</i>
Wood Pigeon	<i>Columba palumbus</i>
Pheasant	<i>Phasianus colchicus</i>
Wren	<i>Troglodytes troglodytes</i>

All species are common and widespread and would be expected within agricultural lands surrounded by mature trees and scrub. House sparrows are Amber-listed in Ireland due to a moderate ongoing decline in the European breeding population while the Irish population is currently stable.

Table 3: Birds noted in January and February 2019

Species	Scientific name
Buzzard	<i>Buteo buteo</i>
Herring gull	<i>Larus argentatus</i>
Blackbird	<i>Turdus merula</i>
Dunnock	<i>Prunella modularis</i>
Robin	<i>Erithacus rubecula</i>
Goldcrest	<i>Regulus regulus</i>
Rook	<i>Corvus frugilegus</i>
Blue Tit	<i>Cyanistes caeruleus</i>
Great Tit	<i>Parus ater</i>
Goldfinch	<i>Carduelis carduelis</i>
Song Thrush	<i>Turdus philomelos</i>
Mistle thrush	<i>Turdus</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Hooded Crow	<i>Corvus cornix</i>
Chaffinch	<i>Fringilla coelebs</i>
House sparrow	<i>Passer domesticus</i>
Linnet	<i>Carduelis cannabina</i>
Lesser Redpoll	<i>Carduelis cabaret</i>
Jackdaw	<i>Corvus monedula</i>
Wood Pigeon	<i>Columba palumbus</i>
Feral pigeon	<i>Columba</i>
Pheasant	<i>Phasianus colchicus</i>
Wren	<i>Troglodytes troglodytes</i>
Curlew	<i>Numenius arquata</i>

There was a similar array of bird species throughout the winter with the addition of curlews while some of the other additional species may have been present but not encountered in the summer assessment. There were no flocks of migratory thrushes (fieldfares and redwings) on either survey in January or February but these are likely to be in the area. Summer warblers such as chiffchaff are likely to occur but were not heard on the survey date in August 2018.

Impacts of The Proposed Development

Potential roost loss for bats

Felling of mature trees creates a risk of roost loss. Bats have not been noted in any trees within the site, but a number of trees offer roost potential. There are a relatively large number of trees with roost potential along the perimeter of the site, some of which would be removed for the development.

Loss of nesting sites for birds

There will be a reduction in the vegetation cover and removal of the hedgerow / treelines and many of the mature trees that offer nest sites for the bird species noted in Table 2. The site will be cleared of many trees. Even trees that are retained will be under considerable pressure from disturbance for the duration of construction.

This will be a long-term moderate negative impact as there will be a loss in established vegetation.

Disturbance from lighting

Lighting may be increased for two different functions:

1) Access and safety and 2) Security and policing. The former is to allow ease of use for residents at night. The latter is to ensure that residents feel a higher level of security.

Reduced Feeding

Reduced vegetation will lead to reduced insect abundance. There will be very little of the current peripheral vegetation on site once the clearance for construction commences and the crops within the fields in the southern section will be permanently removed. These serve as feeding sites for many seed-eating species and insectivorous species such as curlew were also noted within the farmland. There is high bat activity along the trees south of the park along the golf course perimeter and along other hedgerow in these fields. This would be lost by the removal of the hedges and trees.

This will be a permanent moderate negative impact. Feeding will still be available in surrounding areas.

Cumulative Impacts

There will be development in some of the surrounding land over the coming years while the public park, graveyards and golf course will ensure that not all of the area can be changed to housing. This will lead to an increase in human density and associated infrastructure and lighting and a loss of vegetation and green spaces.

Mitigation Measures

Avoidance of the bird nesting period for tree removal and hedgerow clearance

All clearance operations shall avoid the bird nesting period; March 1st to August 31st. This will ensure that no birds are directly lost from these procedures. Where this is not possible, all trees and shrubbery shall be checked for the presence of birds and nests in advance of removal. The NPWS Conservation Ranger must be contacted if there are occupied nests within the site that would be placed at risk during clearance.

Checking of all trees and other structures for bats prior to felling

All mature trees shall be checked for bats by a bat specialist to identify trees with the highest potential prior to felling (this may change between the survey date and felling based on limb damage, storm etc.). From this, trees with the highest roost potential as determined by the bat specialist shall be subjected to a higher level of examination that shall include thorough checking of all suitable crevices, cavities, ivy cover or loose bark. This will require access via a hoist to reach all suitable cavities and crevices.

Should bats be noted during this evaluation, a derogation shall be required from NPWS. This would list the tree / structure that is a bat roost, the species of bat or bats present and the location within the structure, the means by which the bat(s) would be removed without injury and the procedure for caring for and releasing the bat without exposing it to further risk. This would also require further mitigation measures including roost replacement such as bat boxes or other alternatives.

Planting for birds and bats

Planting must provide suitable cover for nesting birds and to encourage insect diversity that would sustain birds and bats. Species of plant are given in the Appendices to this report.

This can be achieved both by availing of native species and non-native non-invasive plant species. Nesting birds require dense cover to hide nests and to avoid predation from cats, crow species etc. Planting should be examined by an ecologist and where supplementary planting is considered necessary, this should be incorporated. Bird boxes may also be considered if required.

The trees lost in the section of the site closest to the park (which serves as part of the park at present) should be replaced with a double line of trees. If possible mature or semi-mature trees should be used to ensure that the time lag in replacing lost vegetation is reduced. This may be achieved by re-location of some of the existing trees.

Bat boxes

6 x 2F Schwegler bat boxes are proposed for incorporation into the site to provide roost sites for bats. These shall be provided in unlit areas at a height of no less than 2 metres and in uncluttered areas away from busy roads or other high activity. Mature trees (such as beech or oak) are typically very suitable for boxes and where there are no suitable tree, walls or poles may be used. Boxes should primarily face southwards (four of the boxes) but with two of the boxes facing away from direct solar radiation towards midday (e.g. westerly).

Lighting management

Mature trees and buildings such as the nearby church must not be directly illuminated. Lighting shall be for safety and mobility and not for ornamental purposes. Light falling upon any areas of benefit to bats such as mature trees must not exceed 3 lux to ensure that light intolerant species are not prevented from feeding and commuting.

Impacts Following Mitigation

There will be a loss of feeding within the site for bats and birds and a loss of nesting areas for birds. Vegetation will establish over time and these losses will be reduced considerably. There will still be less cover for birds following all mitigation. There will be some loss of feeding for bats in the medium-term that will be less pronounced as vegetation develops.

There will be limited or no loss of roost potential as the site develops and with the provision of bat boxes.

APPENDICES



Figure 1: Bat activity Woodbrook from sunset on 17th August 2018 up to 22.30 hours

Legend

Yellow paddle / circle

Green paddle / circle

Leisler's bat

Common Pipistrelle

Blue paddle / circle

Soprano Pipistrelle



Figure 2: Bat activity Woodbrook south of the Park from sunset on 25th September 2018

Legend

Yellow paddle / circle
 Green paddle / circle
 "2" paddle

Leisler's bat

Common Pipistrelle

Both pipistrelle species at once

Blue paddle / circle

Soprano Pipistrelle



Figure 3: Bat activity prior to dawn on August 18th, 2018

The final signal was close to St. James' Church at 05.43 hours (a Leisler's bat)

Two Soprano Pipistrelles were seen chasing at 05.32 hours, but their final destination is unknown

Legend

Yellow paddle / circle

Leisler's bat

Green paddle / circle

Common Pipistrelle

Blue paddle / circle

Soprano Pipistrelle



Figure 4: Bat activity Woodbrook south of the Park from sunset on 3rd October 2018

Legend

Yellow lines	Leisler's bat activity		
Green paddle / circle	Common Pipistrelle	Blue paddle / circle	Soprano Pipistrelle
"2" paddle	Both pipistrelle species at once		
"3" paddle	Pipistrelles and Leisler's bat		

Table 4: Bat activity within the site 18th August 2018 (a) EM3 and (b) SM2**(a)**

Date	Time	Auto Id	Pulses	Matching	Manual Id
17/08/2018	21:13:31	Soprano Pipistrelle	17	17	Soprano Pipistrelle
17/08/2018	21:16:53	Common Pipistrelle	19	15	Common Pipistrelle
17/08/2018	21:17:13	Common Pipistrelle	26	26	Common Pipistrelle
17/08/2018	21:17:33	Common Pipistrelle	11	11	Common Pipistrelle
17/08/2018	21:18:54	Noid	2	0	Common Pipistrelle
17/08/2018	21:23:56	Common Pipistrelle	39	35	Common Pipistrelle
17/08/2018	21:24:36	Common Pipistrelle	8	7	Common Pipistrelle
17/08/2018	21:24:56	Nathusius' pipistrelle	5	5	Common Pipistrelle
17/08/2018	21:28:38	Soprano Pipistrelle	5	5	Soprano Pipistrelle
17/08/2018	21:35:21	Leisler's Bat	11	11	Leisler's Bat
17/08/2018	21:36:01	Common Pipistrelle	3	3	Common Pipistrelle
17/08/2018	21:36:22	Soprano Pipistrelle	15	15	Soprano Pipistrelle
17/08/2018	21:46:26	Common Pipistrelle	45	35	Common Pipistrelle
17/08/2018	21:46:46	Common Pipistrelle	3	3	Common Pipistrelle
17/08/2018	21:47:07	Common Pipistrelle	35	26	Common Pipistrelle
17/08/2018	21:48:27	Common Pipistrelle	14	14	Common Pipistrelle
17/08/2018	22:03:54	Common Pipistrelle	18	12	Common Pipistrelle
17/08/2018	22:04:14	Common Pipistrelle	115	106	Common Pipistrelle
17/08/2018	22:04:35	Common Pipistrelle	41	38	Common Pipistrelle
17/08/2018	22:04:55	Common Pipistrelle	34	25	Leisler's Bat Common Pipistrelle
17/08/2018	22:05:15	Common Pipistrelle	7	7	Common Pipistrelle
17/08/2018	22:05:35	Common Pipistrelle	78	53	Leisler's Bat Common Pipistrelle
17/08/2018	22:05:55	Common Pipistrelle	4	4	Common Pipistrelle
17/08/2018	22:17:00	Soprano Pipistrelle	13	13	Soprano Pipistrelle
17/08/2018	22:21:02	Common Pipistrelle	15	15	Common Pipistrelle
17/08/2018	22:22:03	Common Pipistrelle	14	12	Common Pipistrelle
17/08/2018	22:29:26	Common Pipistrelle	27	20	Common Pipistrelle
17/08/2018	22:29:47	Common Pipistrelle	26	24	Common Pipistrelle
17/08/2018	22:30:07	Common Pipistrelle	38	37	Common Pipistrelle
17/08/2018	22:30:27	Common Pipistrelle	43	38	Common Pipistrelle
17/08/2018	22:34:47	Leisler's Bat	3	3	Leisler's Bat
17/08/2018	22:38:28	Common Pipistrelle	4	4	Common Pipistrelle
17/08/2018	22:38:48	Common Pipistrelle	7	7	Common Pipistrelle

**Table 4: Bat activity within the site 18th August 2018 (a) EM3 and (b) SM2
(b)**

DATE	TIME	AUTO ID	PULSES	MATCHING	MANUAL ID
17/08/2018	21:07:30	NYLE	8	8	NYLE
17/08/2018	21:08:00	NYLE	12	12	NYLE
17/08/2018	21:18:30	PIPI	9	8	PIPI
17/08/2018	21:20:00	PIPI	3	3	PIPI
17/08/2018	21:21:30	PIPI	6	6	PIPI
17/08/2018	21:22:00	PIPI	2	2	PIPI
17/08/2018	21:22:30	PIPI	3	3	PIPI
17/08/2018	21:24:00	PIPI	11	10	PIPI
17/08/2018	21:24:30	PIPI	18	17	PIPI
17/08/2018	21:25:00	PIPI	3	3	PIPI
17/08/2018	21:34:38	NoID	1	0	NYLE
17/08/2018	21:37:08	PIPI	9	9	NYLE
17/08/2018	21:37:38	PIPI	5	5	PIPI
17/08/2018	21:39:08	PIPI	4	4	PIPI
17/08/2018	21:39:38	PIPI	6	6	PIPI
17/08/2018	21:44:30	PIPI	5	5	PIPI
17/08/2018	21:45:00	PIPI	18	18	PIPI
17/08/2018	21:45:30	PIPI	3	3	PIPI
17/08/2018	21:46:30	PIPI	3	3	PIPI
17/08/2018	21:47:00	NYLE	2	2	NYLE
17/08/2018	21:47:30	PIPI	7	7	PIPI
17/08/2018	21:48:00	PIPI	10	10	PIPI
17/08/2018	21:48:30	PIPI	19	19	PIPI
17/08/2018	21:49:30	PIPI	26	26	PIPI
17/08/2018	21:50:00	PIPI	3	3	PIPI
17/08/2018	21:51:30	PIPI	14	14	PIPI
17/08/2018	21:52:00	PIPI	5	5	PIPI
17/08/2018	21:52:30	PIPI	5	5	PIPI
17/08/2018	21:53:00	NYLE	2	2	NYLE
17/08/2018	21:55:00	PIPI	14	13	PIPI
17/08/2018	21:56:30	PIPI	15	15	PIPI
17/08/2018	21:57:30	PIPI	7	7	PIPI
17/08/2018	21:58:30	PIPI	13	13	PIPI
17/08/2018	21:59:30	PIPI	9	9	PIPI
17/08/2018	22:00:00	PIPI	10	10	PIPI
17/08/2018	22:02:00	PIPI	5	5	PIPI
17/08/2018	22:03:30	PIPI	3	3	PIPI
17/08/2018	22:05:00	NoID	2	0	NYLE PIPI
17/08/2018	22:06:00	PIPI	23	22	PIPI
18/08/2018	05:44:30	NYLE	4	4	NYLE
18/08/2018	05:53:08	NoID	0	0	Noise

Table 5: Bat activity within the park site on the second visit 3rd October 2018

Time (Pm)	Auto Id	Pulses	Matching	Manual Id
06:57:28	Leisler's Bat	12	12	Leisler's Bat
06:58:01	Leisler's Bat	10	10	Leisler's Bat
07:00:11	Leisler's Bat	4	4	Leisler's Bat
07:10:15	Leisler's Bat	28	28	Leisler's Bat
07:11:22	Leisler's Bat	3	3	Leisler's Bat
07:11:55	Leisler's Bat	12	12	Leisler's Bat
07:13:35	Leisler's Bat	11	11	Leisler's Bat
07:14:43	Leisler's Bat	5	5	Leisler's Bat
07:16:23	Leisler's Bat	9	9	Leisler's Bat
07:16:58	Leisler's Bat	16	16	Leisler's Bat
07:17:28	Leisler's Bat	4	4	Leisler's Bat
07:17:31	Leisler's Bat	12	12	Leisler's Bat
07:18:05	Leisler's Bat	17	17	Leisler's Bat
07:18:38	Leisler's Bat	41	41	Leisler's Bat
07:19:45	Leisler's Bat	43	42	Leisler's Bat
07:20:15	Leisler's Bat	4	4	Leisler's Bat
07:20:18	Leisler's Bat	49	49	Leisler's Bat
07:20:48	Leisler's Bat	10	10	Leisler's Bat
07:20:52	Leisler's Bat	27	27	Leisler's Bat
07:21:22	Leisler's Bat	5	5	Leisler's Bat
07:21:25	Leisler's Bat	46	46	Leisler's Bat
07:21:55	Leisler's Bat	3	3	Leisler's Bat
07:21:58	Leisler's Bat	45	43	Leisler's Bat
07:22:28	Leisler's Bat	9	9	Leisler's Bat
07:22:32	Leisler's Bat	70	70	Leisler's Bat
07:23:05	Leisler's Bat	16	16	Leisler's Bat
07:23:39	Soprano Pipistrelle	61	37	Soprano Pipistrelle
07:24:09	Leisler's Bat	10	10	Leisler's Bat
07:24:13	Soprano Pipistrelle	56	38	Leisler's Bat Soprano Pipistrelle
07:24:47	Soprano Pipistrelle	208	185	Leisler's Bat Soprano Pipistrelle
07:25:20	Leisler's Bat	2	2	Leisler's Bat
07:25:50	Leisler's Bat	3	3	Leisler's Bat
07:25:53	Leisler's Bat	21	21	Leisler's Bat
07:26:28	Leisler's Bat	13	13	Leisler's Bat
07:27:01	Leisler's Bat	4	4	Leisler's Bat
07:27:36	Leisler's Bat	2	2	Leisler's Bat
07:28:06	Leisler's Bat	2	2	Leisler's Bat
07:28:10	Leisler's Bat	17	17	Leisler's Bat
07:28:45	Leisler's Bat	2	2	Leisler's Bat
07:29:18	Common Pipistrelle	41	19	Common Pipistrelle
07:29:52	Common Pipistrelle	39	36	Common Pipistrelle
07:30:59	Common Pipistrelle	42	28	Leisler's Bat Common Pipistrelle

07:31:32	Common Pipistrelle	33	29	Leisler's Bat Common Pipistrelle
07:32:02	Common Pipistrelle	6	5	Leisler's Bat Common Pipistrelle
07:32:39	Common Pipistrelle	8	5	Common Pipistrelle Soprano Pipistrelle
07:33:09	Common Pipistrelle	4	4	Common Pipistrelle
07:33:12	Common Pipistrelle	19	16	Common Pipistrelle
07:33:46	Leisler's Bat	19	19	Leisler's Bat Common Pipistrelle
07:34:53	Leisler's Bat	17	17	Leisler's Bat
07:35:26	Leisler's Bat	3	3	Leisler's Bat
07:35:56	Leisler's Bat	7	7	Leisler's Bat
07:36:00	Leisler's Bat	13	12	Leisler's Bat
07:36:30	Leisler's Bat	4	4	Leisler's Bat
07:36:33	Leisler's Bat	22	22	Leisler's Bat
07:37:06	Leisler's Bat	12	12	Leisler's Bat
07:37:40	Leisler's Bat	6	6	Leisler's Bat
07:39:21	Soprano Pipistrelle	23	19	Leisler's Bat Soprano Pipistrelle
07:42:09	Common Pipistrelle	31	31	Common Pipistrelle
07:44:23	Leisler's Bat	6	6	Leisler's Bat
07:44:56	Common Pipistrelle	43	40	Common Pipistrelle Soprano Pipistrelle
07:46:04	Common Pipistrelle	8	8	Common Pipistrelle
07:46:38	Common Pipistrelle	7	7	Common Pipistrelle
07:47:12	Leisler's Bat	4	3	Leisler's Bat Common Pipistrelle
07:47:45	Leisler's Bat	12	10	Leisler's Bat Common Pipistrelle
07:48:19	Leisler's Bat	16	16	Leisler's Bat
07:50:00	Common Pipistrelle	19	19	Common Pipistrelle
07:51:40	Common Pipistrelle	40	39	Common Pipistrelle
07:52:15	Common Pipistrelle	24	13	Leisler's Bat Common Pipistrelle
07:52:48	Common Pipistrelle	40	23	Leisler's Bat Common Pipistrelle
07:53:54	Common Pipistrelle	7	7	Common Pipistrelle
07:54:28	Leisler's Bat	7	7	Leisler's Bat
07:55:01	Noid	2	0	Noise
07:57:15	Common Pipistrelle	26	26	Common Pipistrelle
07:57:49	Common Pipistrelle	94	69	Common Pipistrelle
07:58:19	Common Pipistrelle	12	8	Leisler's Bat Common Pipistrelle
07:58:22	Common Pipistrelle	34	17	Leisler's Bat Common Pipistrelle
07:58:52	Common Pipistrelle	25	24	Common Pipistrelle
07:58:57	Common Pipistrelle	184	99	Leisler's Bat Common Pipistrelle
07:59:27	Soprano Pipistrelle	6	5	Soprano Pipistrelle
07:59:30	Common Pipistrelle	162	98	Common Pipistrelle Soprano Pipistrelle
08:00:00	Common Pipistrelle	14	14	Common Pipistrelle Soprano Pipistrelle
08:00:03	Common Pipistrelle	22	16	Common Pipistrelle Soprano Pipistrelle
08:00:33	Leisler's Bat	2	2	Leisler's Bat
08:00:37	Leisler's Bat	5	3	Leisler's Bat Common Pipistrelle
08:01:07	Leisler's Bat	2	2	Leisler's Bat
08:01:11	Leisler's Bat	11	11	Leisler's Bat

08:01:44	Leisler's Bat	27	25	Leisler's Bat
08:02:14	Leisler's Bat	3	3	Leisler's Bat
08:02:18	Leisler's Bat	15	14	Leisler's Bat Common Pipistrelle
08:04:32	Leisler's Bat	11	11	Leisler's Bat
08:05:02	Leisler's Bat	2	2	Leisler's Bat
08:05:05	Leisler's Bat	6	6	Leisler's Bat
08:05:38	Common Pipistrelle	59	24	Common Pipistrelle
08:06:12	Leisler's Bat	7	7	Leisler's Bat
08:07:54	Common Pipistrelle	35	25	Leisler's Bat Common Pipistrelle
08:11:16	Common Pipistrelle	2	2	Common Pipistrelle
08:12:57	Common Pipistrelle	17	14	Common Pipistrelle
08:15:12	Common Pipistrelle	48	41	Common Pipistrelle
08:16:52	Common Pipistrelle	6	6	Common Pipistrelle
08:17:25	Common Pipistrelle	49	30	Common Pipistrelle
08:17:55	Common Pipistrelle	5	5	Common Pipistrelle
08:18:02	Common Pipistrelle	10	10	Common Pipistrelle
08:18:35	Leisler's Bat	2	2	Leisler's Bat
08:19:09	Common Pipistrelle	4	4	Common Pipistrelle
08:19:42	Common Pipistrelle	74	34	Leisler's Bat Common Pipistrelle Soprano Pipistrelle
08:20:15	Common Pipistrelle	7	7	Common Pipistrelle
08:20:49	Common Pipistrelle	2	2	Common Pipistrelle
08:21:22	Common Pipistrelle	6	6	Common Pipistrelle
08:23:02	Leisler's Bat	18	18	Leisler's Bat
08:28:40	Common Pipistrelle	32	32	Common Pipistrelle
08:29:14	Common Pipistrelle	41	21	Common Pipistrelle
08:32:03	Common Pipistrelle	12	12	Common Pipistrelle
08:32:33	Common Pipistrelle	2	2	Common Pipistrelle
08:34:47	Common Pipistrelle	4	4	Common Pipistrelle
08:34:51	Common Pipistrelle	4	4	Common Pipistrelle

Plants proposed for bats and birds

Flowers for borders

*Aubretia (spring to early summer) *Candytuft (summer to autumn) *Cherry pie (summer to autumn) Corncockle Cornflower Corn marigold Corn poppy *Echinacea English Bluebell (spring) *Evening primrose (summer to autumn) Field poppies (summer) *Honesty (spring) *Ice plant 'Pink lady' (early autumn) Knapweed (summer to autumn) Mallow (summer to autumn) *Mexican aster (summer to autumn) *Michaelmas daisy (summer to autumn) *Night-scented stock (summer) Ox-eye daisy (summer) *Phacelia (summer to autumn) *Poached egg plant (summer) Primrose (spring) Red campion (spring) *Red valerian (summer to autumn) Scabious (summer) St John's wort (spring)

*Sweet William (summer) *Tobacco plant *Verbena (summer to autumn) *Wallflowers (spring to early summer) Wood forget-me-not (spring) Yarrow (early summer)

Herbs

Angelica Bergamot (summer to early autumn) Borage (spring to early autumn) Coriander (summer) English marigolds Fennel (summer to early autumn) Feverfew (summer to autumn) Hyssop (summer to early autumn) Lavenders Lemon balm Marjoram (summer) Rosemary (spring) Sweet Cicely (spring to early summer) Thyme (summer)

Trees and shrubs

Bramble (climber) * Common alder (suitable for coppicing) Dog rose (climber) Elder (small) oak (large gardens or public spaces) Gorse (shrub) Guelder rose (shrub) Hawthorn (suitable for coppicing) Hazel (suitable for coppicing) Honeysuckle (native honeysuckle) Hornbeam Ivy (climber) *Jasmine (night-scented) Pussy willow (suitable for coppicing) Rowan Silver birch T

Table 6: Bat Conservation Ireland data: search results 22 Mar 2019

Search parameters: Roosts Transects Ad-hoc observation sites with observations of all bats within 1000m of O2586120361.					
Ad-hoc observations					
Survey	Grid reference	Grid ref easting	Grid ref northing	Date	Species
EIA survey- Paul Scott (Scott Cawley)	O260200	326000	220000	16/07/2007	Myotis nattereri; Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus
EIS surveys - Brian Keeley	O260002100 0	326000	221000	01/09/2004	Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus