

## **A bat assessment of the proposed cycleway in Ratoath, Co Meath**

**To provide ecological data for Part 8 Planning to develop a greenway adjacent the Broadmeadow River, Ratoath, Co. Meath**



By Donna Mullen M.P.P.M and Brian Keeley BSc Hons in Zool

Maio, Tierworker, Kells Co Meath

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[www.wildlifesurveys.net](http://www.wildlifesurveys.net)

## Summary

Bats were not found roosting in the trees on this site. However, bats were found feeding and commuting along the river. Natterer's bats were found feeding in the woodland section along the river. As Natterer's bats are rarely recorded in Meath and are light intolerant, it is important to keep light pollution to a minimum.

Young bats were seen taking their first flights along the river, feeding off the insects in the grasses. The river and surrounding vegetation provide a good feeding area for bats. It is important to retain long grasses and vegetation, particularly between the new cycleway and the river.

## Bat species found feeding and commuting on the site and along the river

|                       |                                  |
|-----------------------|----------------------------------|
| Common pipistrelle    | <i>Pipistrellus pipistrellus</i> |
| Soprano pipistrelle – | <i>Pipistrellus pygmaeus</i>     |
| Natterer's bat –      | <i>Myotis nattereri</i>          |
| Leisler's bat –       | <i>Nyctalus leisleri</i>         |

## Recommendations

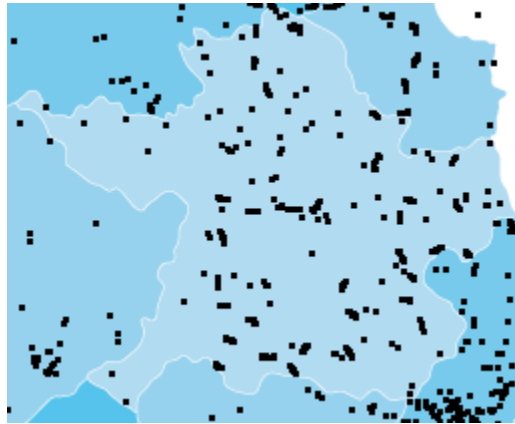
**(1) Avoiding light pollution-** Light spillage must not occur on the river, and light pollution must be avoided. This can be achieved by using low level bollard lights, with hoods and cowls fitted to prevent light entering the river area and sky. It is particularly important that light pollution is kept to a minimum in the wooded section of the cycleway.

**(2) Retain trees where possible.** Common and soprano pipistrelles were found feeding along the canopy of the trees on the site. These trees provide shelter and cracks and crevices to roost in.

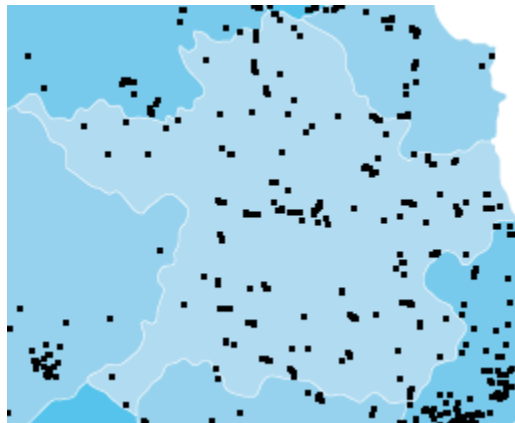
**(3) Bat boxes-** Four bat boxes should be erected along the route of the cycleway – Two 2FN Schwegler bat boxes and two NHBS Kent boxes. These should be placed on trees, at least 4m high, with a clear drop below (no underlying branches – as bats need to drop to start their flight). These can be purchased from [www.nhbs.com](http://www.nhbs.com).

**(4) Management of vegetation-** to prevent loss of feeding, grasses and vegetation adjacent to the cycleway should not be mown during the summer months. Long grass and native plants allow insect diversity, which in turn provides food for bats. In particular, where the cycleway runs by the river, the area between the river and the cycleway should not be sprayed or cut. If required, a nature panel can be designed (email [info@wildlifesurveys.net](mailto:info@wildlifesurveys.net)) to explain the 'untidy' areas left for insect diversity and young bats.

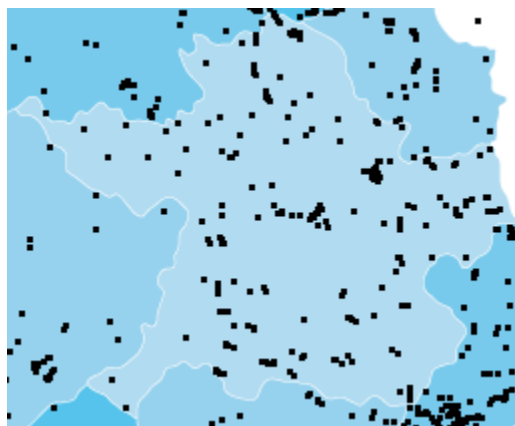
## Desktop Survey



Distribution of common pipistrelle in Meath



Distribution of Leisler's bat in Meath



Distribution of soprano pipistrelle in Meath



### **Distribution of Natterer's bat in Meath**

Thanks to Bat Conservation Ireland for their data. All data from this report will be placed on their database.

**Habitat;** Improved and unimproved grassland, semi -mature trees and woodland, hedges, river and treelines.

**Temperature** -16°C dropping to 14°C

**Sunset** - 21.50 hours

### **Methodology**

Bat Survey - Equipment

LED Lamp, Petzl Tikka Head torch

Echometer 3 bat detector x 2

Two surveyors with EM3 time expansion detectors and kaleidoscope sound analysis software with GPS – hand held

**Survey and recommendations;**

The survey took place on July 12<sup>th</sup>, commencing at 21.30 hours. Most trees are immature and unsuitable as roosts, however there are occasional trees with deadwood, cracks and crevices which would be suitable for bat usage.



**This tree has crevices suitable for bat usage.**

There is considerable light pollution, particularly along the western entrance at Meadowbank.



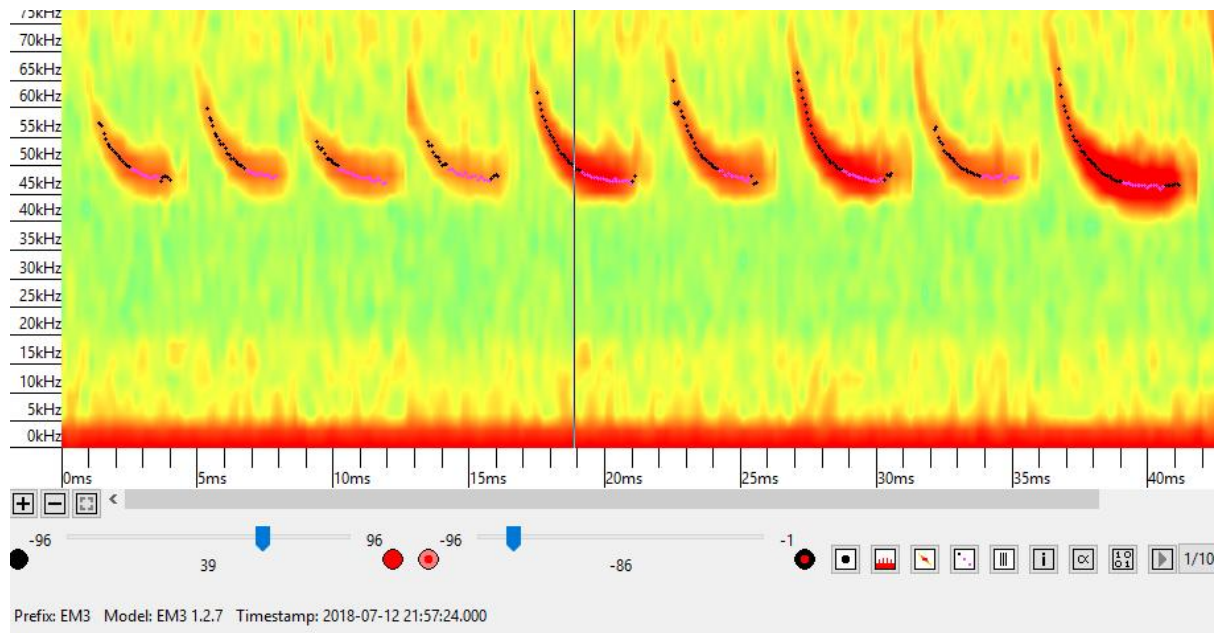
**Light pollution with spillage into the sky at the western entrance**

Some areas beside the river are intensively sprayed and cut and planted with laurel – which is toxic to both people and wildlife.



**This area near the Jamestown estate is very poor for wildlife.**

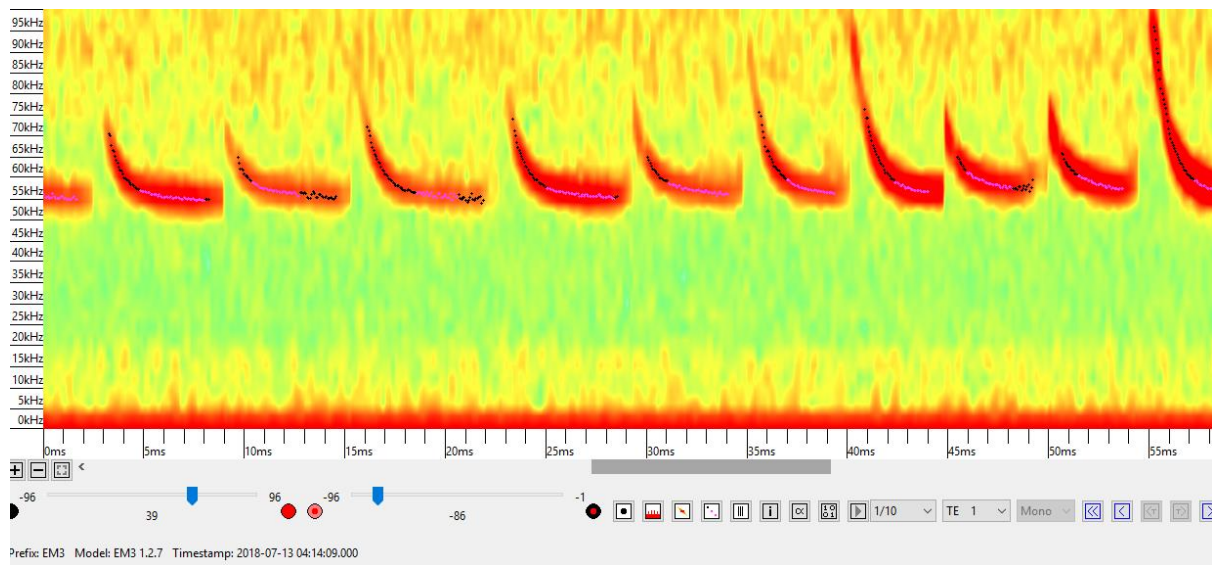
A common pipistrelle was seen in the woodland at 22.06. A second common pipistrelle was recorded at the 1<sup>st</sup> (eastern) bridge.



**Common pipistrelle recorded at the eastern bridge**

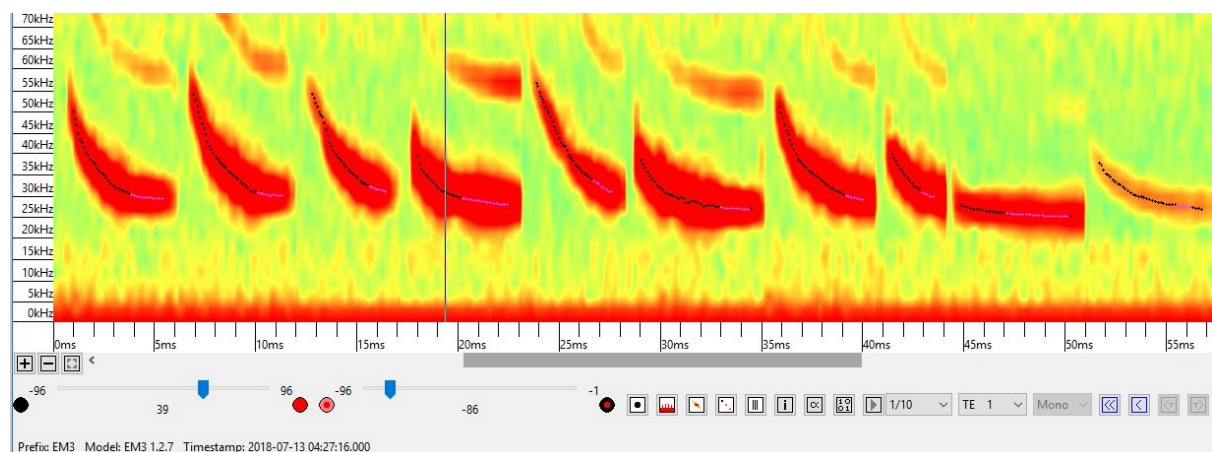
Soprano pipistrelles fed along the river at the forest area at 22.13. At 22.45, a natterer's bat flew along the wood behind Coill Beag. This bat flew in this area for several minutes, keeping to the dark areas. A common pipistrelle was seen on the entrance (west) track at 22.58

At 3.51 a common pipistrelle was seen at the eastern bridge. A Natterer's bat was seen flying north west through the woodland from 4.17 to 4.20. A stream of 5 common pipistrelles were seen passing along the laurel hedge at Jamestown Park and turning into the estate. It is likely that one of the houses in the estate is a maternity roost.

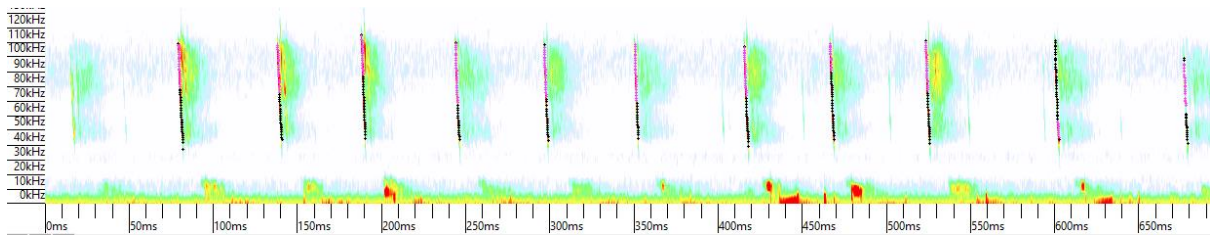


**A soprano pipistrelle was recorded at 4.14 by the river**

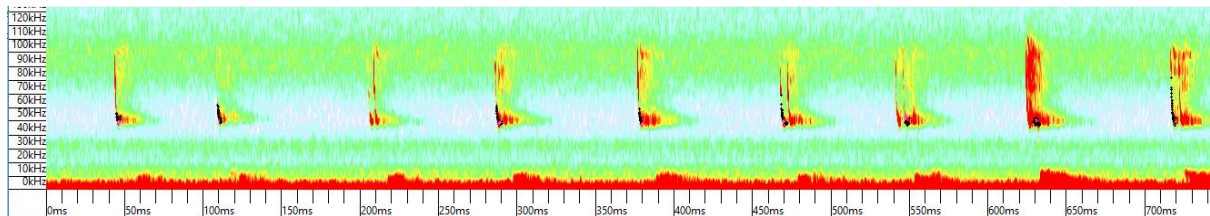
A Leisler's bat was seen feeding around a single tree in the field behind Ratoath Manor at 4.36.



**Leisler's bat feeding at tree**



**Natterer's bat at 0414 hours along the darkest section of the river**



**A common pipistrelle bat at 0430 hours along the busiest section of the river**

Both common and soprano pipistrelles fed under tree cover all along the river at dawn. Young bats were taking their first flights, and groups of two and three bats were seen flying together. This is clearly an important feeding area for bats taking their first flights.



**This is the area where young bats were taking their first flights.**

Note the tall vegetation.



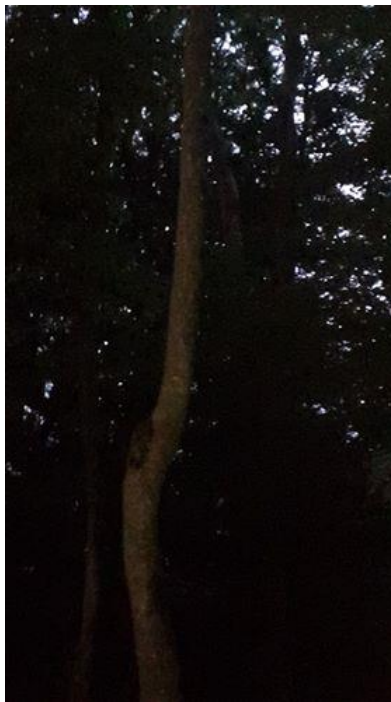
## Recommendations

This area is important for young common and soprano pipistrelles, and the wooded area is frequented by a Natterer's bat, which is uncommon in Meath.

**(1) Avoiding light pollution-** Light spillage must not occur on the river, and light pollution must be avoided. This can be achieved by using low level bollard lights, with hoods and cowls fitted to prevent light entering the river area. It is particularly important that light pollution is kept to a minimum in the wooded section of the cycleway, as this is where the Natterer's bat (a light intolerant species) was found

**(2) Retain trees where possible.** Common and soprano pipistrelles were found feeding along the canopy of the trees on the site. These trees provide food, shelter and cracks and crevices to roost in.

**(3) Bat boxes-** 4 bat boxes should be placed along the cycleway – Two 2FN Schwegler bat boxes and 2 NHBS Kent boxes. These should be placed on trees, at least 4m high, with a clear drop below (no underlying branches – as bats need to drop to start their flight). These can be purchased from online companies principally based in the UK such as [www.nhbs.com](http://www.nhbs.com).



**This tree would be suitable to hang a bat box from, as it has no underlying branches**

**(4) Management of vegetation-** to prevent loss of feeding, grasses and vegetation adjacent to the cycleway should not be mown during the summer months. Long grass and native plants allow insect diversity, which in turn provides food for bats. Whenever the cycleway runs by the river, the area between the river and the cycleway should not be sprayed or cut. If required, a nature panel can be designed ([info@wildlifesurveys.net](mailto:info@wildlifesurveys.net)) to explain the 'untidy' areas left for insect diversity and young bats.

## **Bat Biology**

Female bats gather in groups known as maternity roosts in summer to have their young. They generally have one baby each year, so are slow to reproduce, and disturbance of a maternity roost can be catastrophic.

In winter bats move to old stonework, trees and caves to hibernate. They are especially vulnerable here as they are slow to awaken, and if tree felling is carried out, they can easily be killed.

## **Legislation;**

Bats are protected under the 1996 Wildlife Act, the 2000 Wildlife (Amendment) Act, Stat Ist 94 of 1997, Stat Ist 378 of 2005, The Habitats Directive, The Bonn and Bern Convention, and the Euro bats agreement.

The European Community (Natural Habitats) Regulations S.I. No 94 of 1997 states:

23(1) The minister shall take the requisite measures to establish a system of strict protection for the fauna consisting of the animal species set out in Part 1 of the First Schedule prohibiting –

a) All forms of deliberate capture or killing of specimens of those species in the wild.

1. The deterioration or destruction of breeding sites or resting places of those species.

The EU Habitats Directive

Article 12(1) of the 'Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora (Habitats Directive) states:

“Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) and their natural range, prohibiting:

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

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

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

d. deterioration or destruction of breeding sites or resting places.”

The EU Habitats Directive (92/43/EEC) lists all Irish bat species in Annex IV and one Irish species, the lesser horseshoe bat (*Rhinolophus hipposideros*), in Annex II. Annex II includes animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation (SACs) because they are endangered, rare, vulnerable or endemic. Annex IV includes various species that require strict protection. Article 11 of the Habitats Directive requires member states to monitor all species listed in the Habitats Directive and Article 17 requires States to report to the EU on the findings of monitoring schemes.

### The Bern and Bonn Conventions

Ireland is also a signatory to a number of conservation agreements pertaining to bats such as the Bern and Bonn Conventions.

The European Bats Agreement (EUROBATS) is an agreement under the Bonn Convention. Ireland and the UK are two of the 31 signatories. The Agreement has an Action Plan with priorities for implementation. Devising strategies for monitoring of populations of selected bat species in Europe is among the resolutions of EUROBATS.

#### 1.3.1 The Bern Convention

Article 6 of the ‘Convention on the Conservation of European Wildlife and Natural Habitats’ (Bern Convention) reads:

“Each Contracting Party shall take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II. The following will in particular be prohibited for these species:

- a) all forms of deliberate capture and keeping and deliberate killing;
- b) the deliberate damage to or destruction of breeding or resting sites;
- c) the deliberate disturbance of wild fauna, particularly during the period of breeding, rearing and hibernation, insofar as disturbance would be significant in relation to the objectives of this Convention; ...

Appendix II lists strictly protected fauna species and this list includes “Microchiroptera, all species except *Pipistrellus pipistrelles*”.

### The EUROBATS Agreement

The ‘Agreement on the Conservation of Populations of European Bats’ (EUROBATS) was negotiated under the ‘Convention for the Conservation of Migratory Wild Species’ (Bonn Convention) and came into force in January 1994. The legal protection of bats and their habitats are given in Article III as fundamental obligations:

“1. Each Party shall prohibit the deliberate capture, keeping or killing of bats except under permit from its competent authority

2. Each Party shall identify those sites within its own area of jurisdiction which are important for the conservation status, including for the shelter and protection, of bats. It shall, taking into account as necessary economic and social considerations, protect such sites from damage or disturbance. In addition, each Party shall endeavour to identify and protect important feeding areas for bats from damage or disturbance.”

The Agreement covers all European bat species.

### **Contact Details:**

The phone number for Bat Conservation Ireland is 086 4049468. Their website is [www.batconservationireland.org](http://www.batconservationireland.org). Wildlife Surveys can be contacted at 087 7454233 or 087 6753201. The following email addresses will ensure a response:

[info@wildlifesurveys.net](mailto:info@wildlifesurveys.net)

[donnamullen@wildlifesurveys.net](mailto:donnamullen@wildlifesurveys.net)

[briankeeley@wildlifesurveys.net](mailto:briankeeley@wildlifesurveys.net) and web site is [www.wildlifesurveys.net](http://www.wildlifesurveys.net)

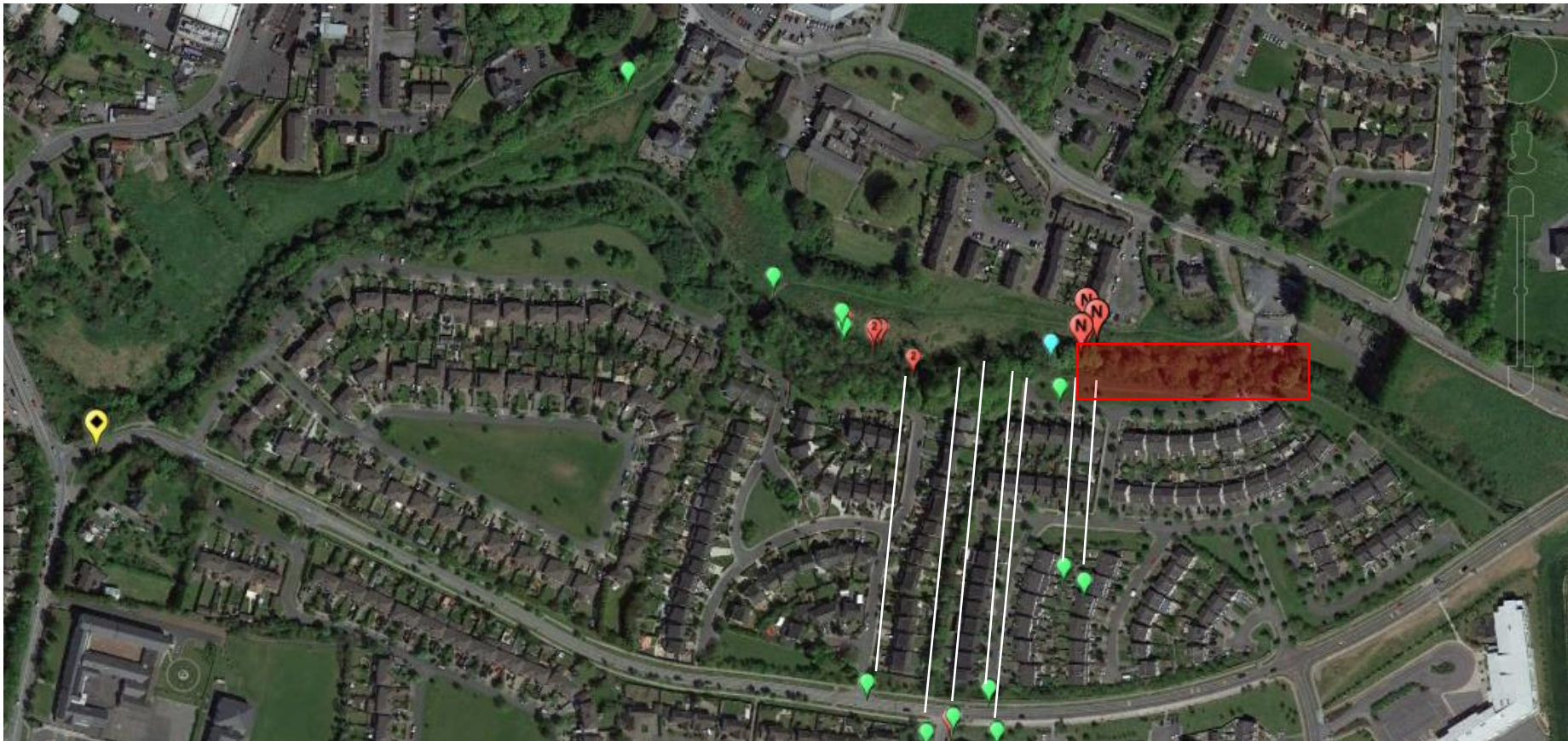
### **Appendix I**

**Bat distribution relative to the proposed cycleway July 2018**

### **Appendix II**

**EM3 detector sound analysis data – hand held**





**Bat activity along the Broadmeadow River July 12<sup>th</sup> and 13<sup>th</sup> 2018**

*Legend*

- |                      |  |                     |  |                    |                     |
|----------------------|--|---------------------|--|--------------------|---------------------|
| <i>Yellow paddle</i> | Leisler's bat                            | <i>Green paddle</i> | Common pipistrelle                               | <i>Blue paddle</i> | Soprano pipistrelle |
| <i>"N" paddle</i>    | Natterer's bat                           | <i>"2" paddle</i>   | Common and soprano pipistrelles in same location |                    |                     |
| <i>Red rectangle</i> | Area most used by Natterer's bat to feed |                     |  |                    |                     |

Data from the 1<sup>st</sup> EM3 of the survey

|    | FOLDER | IN FILE                  | OUT FILE                   | AUTO ID | PULSES | MATCHING | MARGIN   | MANUAL ID    |
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| 3  | Data   | EM3__20180712_215755.wav | EM3__0_20180712_215755_000 | PIPI    | 8      | 7        | 0.377854 | PIPI         |
| 4  | Data   | EM3__20180712_220257.wav | EM3__0_20180712_220257_000 | PIPI    | 34     | 31       | 0.481013 | PIPI         |
| 5  | Data   | EM3__20180713_034251.wav | EM3__0_20180713_034251_000 | PIPI    | 26     | 26       | 0.622784 | PIPI         |
| 6  | Data   | EM3__20180713_035730.wav | EM3__0_20180713_035730_000 | PIPI    | 36     | 34       | 0.592433 | PIPI         |
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Data from the second EM3 in the survey

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| 61 |        | __20180712_221255.wav | __0_20180712_221255_000 | PIPI    | 175    | 107      | 0.250225 | PIPI      |
| 62 |        | __20180712_221255.wav | __0_20180712_221325_000 | PIPI    | 46     | 18       | 0.099275 | PIPI PIPY |
| 63 |        | __20180712_221329.wav | __0_20180712_221329_000 | PIPI    | 57     | 52       | 0.519110 | PIPI PIPY |
| 64 |        | __20180712_221329.wav | __0_20180712_221359_000 | PIPI    | 5      | 5        | 0.687477 | PIPI      |
| 65 |        | __20180712_221402.wav | __0_20180712_221402_000 | PIPI    | 16     | 15       | 0.540805 | PIPI      |
| 66 |        | __20180712_221402.wav | __0_20180712_221432_000 | PIPI    | 21     | 15       | 0.279218 | PIPI      |
| 67 |        | __20180712_221435.wav | __0_20180712_221435_000 | PIPI    | 6      | 6        | 0.609563 | PIPI      |
| 68 |        | __20180712_221542.wav | __0_20180712_221542_000 | PIPI    | 3      | 3        | 0.466709 | PIPI      |
| 69 |        | __20180712_221615.wav | __0_20180712_221615_000 | PIPI    | 80     | 52       | 0.287318 | PIPI      |
| 70 |        | __20180712_221615.wav | __0_20180712_221645_000 | PIPI    | 17     | 17       | 0.692315 | PIPI      |
| 71 |        | __20180712_221648.wav | __0_20180712_221648_000 | PIPI    | 161    | 82       | 0.194493 | PIPI      |
| 72 |        | __20180712_221648.wav | __0_20180712_221718_000 | PIPI    | 9      | 8        | 0.500689 | PIPI      |
| 73 |        | __20180712_221721.wav | __0_20180712_221721_000 | PIPI    | 37     | 31       | 0.453559 | PIPI      |
| 74 |        | __20180712_221828.wav | __0_20180712_221828_000 | PIPI    | 17     | 14       | 0.433824 | PIPI      |
| 75 |        | __20180712_221828.wav | __0_20180712_221858_000 | PIPI    | 15     | 7        | 0.120365 | PIPI      |
| 76 |        | __20180712_224356.wav | __0_20180712_224356_000 | MYBR    | 23     | 21       | 0.267920 | MYNA      |
| 77 |        | __20180712_225749.wav | __0_20180712_225749_000 | PIPI    | 18     | 18       | 0.398252 | PIPI      |
| 78 |        | __20180712_225749.wav | __0_20180712_225819_000 | PIPI    | 3      | 3        | 0.290811 | PIPI      |



|     | FOLDER | IN FILE               | OUT FILE                | AUTO ID | PULSES | MATCHING | MARGIN   | MANUAL ID |
|-----|--------|-----------------------|-------------------------|---------|--------|----------|----------|-----------|
| 79  |        | __20180713_040537.wav | __0_20180713_040537_000 | PIPI    | 52     | 47       | 0.519349 | PIPI      |
| 80  |        | __20180713_040610.wav | __0_20180713_040610_000 | PIPI    | 76     | 42       | 0.231645 | PIPI      |
| 81  |        | __20180713_040610.wav | __0_20180713_040640_000 | PIPI    | 6      | 5        | 0.448864 | PIPI      |
| 82  |        | __20180713_040644.wav | __0_20180713_040644_000 | PIPI    | 64     | 52       | 0.421020 | PIPI      |
| 83  |        | __20180713_040644.wav | __0_20180713_040714_000 | PIPI    | 2      | 2        | 0.441822 | PIPI      |
| 84  |        | __20180713_040717.wav | __0_20180713_040717_000 | PIPI    | 117    | 56       | 0.169801 | PIPI      |
| 85  |        | __20180713_040717.wav | __0_20180713_040747_000 | PIPI    | 11     | 10       | 0.535107 | PIPI      |
| 86  |        | __20180713_040751.wav | __0_20180713_040751_000 | PIPI    | 27     | 18       | 0.309315 | PIPI      |
| 87  |        | __20180713_040751.wav | __0_20180713_040821_000 | PIPY    | 5      | 4        | 0.218133 | PIP       |
| 88  |        | __20180713_040857.wav | __0_20180713_040857_000 | PIPI    | 27     | 27       | 0.620252 | PIPI      |
| 89  |        | __20180713_041143.wav | __0_20180713_041143_000 | PIPY    | 26     | 26       | 0.281102 | PIPY      |
| 90  |        | __20180713_041356.wav | __0_20180713_041356_000 | MYBR    | 26     | 15       | 0.138854 | MYNA      |
| 91  |        | __20180713_041504.wav | __0_20180713_041504_000 | MYBR    | 10     | 8        | 0.164877 | MYNA      |
| 92  |        | __20180713_041538.wav | __0_20180713_041538_000 | MYBR    | 6      | 5        | 0.298252 | MYNA      |
| 93  |        | __20180713_041538.wav | __0_20180713_041608_000 | MYBR    | 11     | 11       | 0.337656 | MYNA      |
| 94  |        | __20180713_041611.wav | __0_20180713_041611_000 | MYBR    | 18     | 16       | 0.231694 | MYNA      |
| 95  |        | __20180713_041751.wav | __0_20180713_041751_000 | MYBR    | 5      | 5        | 0.348662 | MYNA      |
| 96  |        | __20180713_042004.wav | __0_20180713_042004_000 | MYBR    | 24     | 23       | 0.284133 | MYNA      |
| 97  |        | __20180713_042037.wav | __0_20180713_042037_000 | MYBR    | 8      | 8        | 0.349569 | MYNA      |
| 98  |        | __20180713_042217.wav | __0_20180713_042217_000 | PIPY    | 11     | 11       | 0.297167 | PIPY      |
| 99  |        | __20180713_042250.wav | __0_20180713_042250_000 | MYBR    | 10     | 7        | 0.170789 | MYNA      |
| 100 |        | __20180713_042324.wav | __0_20180713_042324_000 | MYBR    | 8      | 7        | 0.259838 | MYNA      |
| 101 |        | __20180713_042751.wav | __0_20180713_042751_000 | PIPY    | 2      | 2        | 0.285488 | PIPY      |
| 102 |        | __20180713_042931.wav | __0_20180713_042931_000 | MYBR    | 2      | 2        | 0.271508 | PIP       |
| 103 |        | __20180713_042931.wav | __0_20180713_043001_000 | PIPI    | 11     | 4        | 0.055199 |           |
| 104 |        | __20180713_043004.wav | __0_20180713_043004_000 | PIPI    | 13     | 6        | 0.132646 | PIP       |
| 105 |        | __20180713_043037.wav | __0_20180713_043037_000 | MYBR    | 48     | 27       | 0.106977 | MYNA      |
| 106 |        | __20180713_043111.wav | __0_20180713_043111_000 | PIPY    | 23     | 19       | 0.207038 | PIPY      |
| 107 |        | __20180713_043144.wav | __0_20180713_043144_000 | PIPY    | 18     | 15       | 0.233794 | PIPY      |
| 108 |        | __20180713_043217.wav | __0_20180713_043247_000 | PIPY    | 11     | 10       | 0.257287 | PIPY      |
| 109 |        | __20180713_043251.wav | __0_20180713_043251_000 | PIPY    | 27     | 22       | 0.188116 | PIPY      |
| 110 |        | __20180713_043644.wav | __0_20180713_043644_000 | PIPY    | 70     | 70       | 0.298183 | PIPY      |
| 111 |        | __20180713_043644.wav | __0_20180713_043714_000 | PIPY    | 29     | 29       | 0.353111 | PIPY      |
| 112 |        | __20180713_043718.wav | __0_20180713_043718_000 | PIPY    | 250    | 238      | 0.289726 | PIPY      |
| 113 |        | __20180713_043718.wav | __0_20180713_043748_000 | PIPY    | 21     | 21       | 0.307633 | PIPY      |
| 114 |        | __20180713_043752.wav | __0_20180713_043752_000 | PIPY    | 247    | 219      | 0.260744 | PIPY      |
| 115 |        | __20180713_043752.wav | __0_20180713_043822_000 | PIPY    | 19     | 18       | 0.296040 | PIPY      |
| 116 |        | __20180713_043825.wav | __0_20180713_043825_000 | PIPY    | 242    | 230      | 0.288838 | PIPY      |
| 117 |        | __20180713_043825.wav | __0_20180713_043855_000 | PIPI    | 6      | 3        | 0.165296 | PIPI      |
| 118 |        | __20180713_043859.wav | __0_20180713_043859_000 | PIPI    | 83     | 49       | 0.265267 | PIPI PIPY |
| 119 |        | __20180713_043859.wav | __0_20180713_043929_000 | PIPY    | 43     | 40       | 0.267948 | PIPI PIPY |
| 120 |        | __20180713_043932.wav | __0_20180713_043932_000 | PIPY    | 389    | 270      | 0.165711 | PIPI PIPY |
| 121 |        | __20180713_043932.wav | __0_20180713_044002_000 | PIPY    | 40     | 35       | 0.264108 | PIPI PIPY |
| 122 |        | __20180713_044005.wav | __0_20180713_044005_000 | PIPY    | 398    | 323      | 0.220443 | PIPI PIPY |
| 123 |        | __20180713_044005.wav | __0_20180713_044035_000 | PIPY    | 45     | 35       | 0.175643 | PIPI PIPY |
| 124 |        | __20180713_044038.wav | __0_20180713_044038_000 | PIPY    | 392    | 314      | 0.216560 | PIPI PIPY |
| 125 |        | __20180713_044038.wav | __0_20180713_044108_000 | PIPY    | 42     | 27       | 0.153785 | PIPI PIPY |
| 126 |        | __20180713_044112.wav | __0_20180713_044112_000 | PIPI    | 85     | 55       | 0.307224 | PIPI PIPY |
| 127 |        | __20180713_044145.wav | __0_20180713_044145_000 | PIPI    | 37     | 15       | 0.177580 | PIPI      |
| 128 |        | __20180713_044252.wav | __0_20180713_044252_000 | PIPI    | 17     | 11       | 0.210222 | PIPI      |
| 129 |        | __20180713_044432.wav | __0_20180713_044502_000 | PIPI    | 11     | 5        | 0.167247 | PIPI      |
| 130 |        | __20180713_044505.wav | __0_20180713_044505_000 | PIPI    | 21     | 16       | 0.427074 | PIPI      |
| 131 |        | __20180713_044539.wav | __0_20180713_044539_000 | PIPI    | 24     | 19       | 0.339059 | PIPI      |
| 132 |        | __20180713_044612.wav | __0_20180713_044612_000 | PIPI    | 81     | 39       | 0.210245 | PIPI      |
| 133 |        | __20180713_044612.wav | __0_20180713_044642_000 | PIPI    | 20     | 13       | 0.290197 | PIPI      |
| 134 |        | __20180713_044646.wav | __0_20180713_044646_000 | PIPY    | 23     | 20       | 0.278857 | PIPI PIPY |
| 135 |        | __20180713_044719.wav | __0_20180713_044719_000 | PIPY    | 10     | 10       | 0.351424 | PIPY      |
| 136 |        | __20180713_044752.wav | __0_20180713_044752_000 | PIPI    | 32     | 18       | 0.189096 | PIPI      |
| 137 |        | __20180713_044825.wav | __0_20180713_044825_000 | PIPI    | 117    | 93       | 0.301332 | PIPI      |
| 138 |        | __20180713_044825.wav | __0_20180713_044855_000 | PIPI    | 21     | 15       | 0.225659 | PIPI      |
| 139 |        | __20180713_044900.wav | __0_20180713_044900_000 | PIPY    | 243    | 165      | 0.160254 | PIPI PIPY |