

BAT CONSERVATION IRELAND

ANNUAL REPORT
2021



BAT CONSERVATION
IRELAND

Our vision is for humans and bats to co-exist in harmony in Ireland



C o n t e n t s

WELCOME

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WELCOME

Brian Keeley
Chair



In the Introduction to our 2020 report, I stated that we were within the trauma of a global pandemic affecting Bat Conservation Ireland's activities. Little did we know (even though we feared it) that this situation would persist through 2021 and that we would still be more spectators than doers for the following 12 months.

Nonetheless, we continued to do whatever was feasible to further the aims of bat conservation and education. We did much of this remotely, only getting to know people from the rectangular frame that connected them to us in our offices or our sitting rooms with candid insights into their home life or to more cautious backdrops ranging from beaches in Hawaii to favourite pets to... well, bats!

In 2021, we were delighted to be able to expand our involvement with a wide and enthusiastic group of volunteers that included the usual projects: Car-based Monitoring, Brown long-eared bat monitoring, Daubenton's bat and Waterways Monitoring, Lesser horseshoe Bat Monitoring (with NPWS). New projects included Bats and Bugs with Citizen Scientists and UCD and we embarked on further interaction with our members and Bat Groups through the Neighbourhood Bats Project. This allowed surveys for bats to stretch across Ireland without anyone having to travel farther than their own home stretch and to expand bat surveys without the need for surveyors to leave their homes for night-time surveys at all.

Bat Conservation Ireland have been very encouraged by the success of the talks organised via the Internet and the willingness of the public and members to keep in touch with us through very difficult times; through times when bats had been connected with some of the most traumatic events in living history.

We can look back with wonder at 2021 as well as sadness. The task ahead for many species is daunting and protecting what we have will not be easy. Our species has been responsible for many previous extinctions dating back possibly to mammoths, mastodons and glyptodonts (armadillo relatives).

An example of others that we have despatched are given below:

- 1690 - Dodo bird -- extinct from predation by introduced pigs and cats
- 1768 - Stellar's sea cow -- extinct from hunting for fur and oil
- 1870 - Labrador duck -- extinct from human competition for mussels and other shellfish
- 1900 - Rocky Mountain locust -- extinct from habitat conversion to farmland
- 1936 - Tasmanian wolf -- extinct from hunting, habitat loss, and competition with dogs
- 1952 - Deepwater cisco fish --extinct from competition and predation by introduced fishes
- 1962 - Hawaii chaff flower -- extinct from habitat conversion to military installations
- 1989 - Golden toad -- extinct from climate change or other impacts
- 2004 - St. Helena olive tree -- extinct from logging and plantations

It would be a shame if this list were to read:

- 2040 Lesser horseshoe bat
- 2045 Whiskered bat
- 2050 Natterer's bat
- 2080 Common pipistrelle

It might seem far-fetched that a bat so widespread as the common pipistrelle could be driven to extinction. Yet, the passenger pigeon numbered 3 to 5 billion individuals and made up between 25% and 40% of the bird population of USA. It was gone from the planet by 1st September 1914 when "Martha", the last of her kind, died at the ripe old age of 29.

Extinction in bats is becoming an increasing probability. In 2002, it was reported that 4% of megachiropteran species ("fruit bats" - not found in Ireland) have gone extinct in the last 500 years as opposed to 0.3% of microchiropteran bats and a higher proportion of megachiroptera is currently at risk of extinction (Megachiroptera: 34%; Microchiroptera: 22%). Thus, almost 1 in every 4 bat species is at risk of extinction. The IUCN currently suggest that 21 bat species are critically endangered (face imminent risk of extinction), 83 bat species are endangered, 109 bat species are considered vulnerable and 242 bat species are considered "data deficient," (more conservation attention is necessary for these species).

We are in a Biodiversity Crisis and a Climate Crisis, in addition to the other travesties and tragedies that we, as a species, either create or accentuate. As long as we keep trying, there is hope that we can slow down the march of Climate Change and Biodiversity Loss. We welcome all the help we can get and offer any help we can provide within the scope of our remit; to protect bats and their habitats and to educate to this end.



BRIAN KEELEY
Chair

ABOUT US



BAT CONSERVATION IRELAND

Mission Statement

Bat Conservation Ireland is an independent, non-profit, charity that is Ireland's leading authority on bats. We conduct monitoring and research to increase knowledge of all Irish bat species, and work to secure and expand existing bat populations, and where feasible to extend their ranges. We aim to develop a genuine and widespread understanding and appreciation of bats amongst the public, state agencies and other organisations, and to secure consistent protection of all bat species and the ecological infrastructure necessary to support them.

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Objectives

Bat Conservation Ireland's main objective is *'the advancement of education and the promotion of the conservation and study of bats on the island of Ireland and elsewhere in the world'*.

This is carried out through:

Education: Disseminating education materials;

Community Engagement: Giving talks and leading bat walks;

Conservation: Carrying out nationwide surveys and monitoring of bats;

Collaboration: Acting as an umbrella group for local bat groups;

Data Research: Providing a central repository for bat records.

Values

A core set of values guides all aspects of the work of Bat Conservation Ireland

Professionalism: We are committed to promoting the conservation of bats and bat habitats through science-based education, emerging research and contemporary best practices;

Collaboration: Together we are stronger and through collaboration our work is better as we strive to achieve our collective goals;

Learning: By learning from our experiences and each other, and implementing those learnings, we are continuously moving forward, innovating, and improving;

Respect: We foster and safeguard a culture where everyone's contributions and relationships are respectful and respected;

Integrity: We consistently conduct ourselves ethically with honesty, openness, fairness and accountability;

Diversity: We value the different ideas, strengths, interests, and cultural backgrounds that make our organisation successful. We welcome healthy debate and differences of opinion;

Reflection: We continuously monitor and evaluate our plans and performance to ensure that we meet our goals efficiently and effectively.

GOVERNANCE

Bat Conservation Ireland is managed by a Governing Council, who oversee the day-to-day running of the organisation. Council for 2021 were:

Chair: Brian Keeley	Miriam Ahern
Vice Chair: Caroline Shiel	Emma Boston
Treasurer: Chris Peppiatt	Anna Collins
Company Secretary: John Curtin	Patricia McAlernon (Elected Dec 2021)
	Tanya Slattery (Elected Dec 2021)

Charity No: 13016	Charity Registered No: 20039417
Tax Reference No: 9781345A	Tax Clearance No: 838778
Company No: 494343	
Registered Office: Carmichael Centre, 4-7, North Brunswick Street, Dublin 7, D07 RHA8	
Auditors & Company Law Advisors: O'Dwyer Delaney, Auditors & Accountants, 33, Fitzwilliam Street Upper, Dublin D02 TF82.	
Bankers: Bank of Ireland, Ashbourne, Co. Meath.	

We are members of the following organisations:

- Irish Environmental Network
- The Wheel
- Affiliated with: Bat Life Europe

Bat Conservation Ireland has adopted and implemented the Charities Governance Code issued by the Charities Regulator. It reported on its compliance with the code formally as required by the regulator in October 2021.



Brian Keeley



Caroline Shiel



Chris Peppiatt



John Curtin



Miriam Ahern



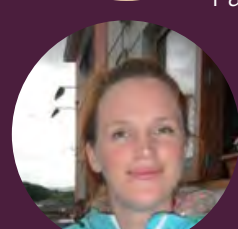
Emma Boston



Anna Collins



Patricia McAlernon



Tanya Slattery

SNAPSHOT OF 2021

CONSERVATION

- 4 Monitoring Schemes
- 460 Volunteers
- 591 Surveys completed

- 692 Queries Answered
- 152,027 website page views
- 48,490 website users

EDUCATION

- 10 active bat groups;
- 12,000 followers on social media

COMMUNITY ENGAGEMENT

- Holds over 100,000 bat records
- Research collaborations with QUB and UCD
- Member of EU COST Action Network: CLIMBATS

RESEARCH & DATA

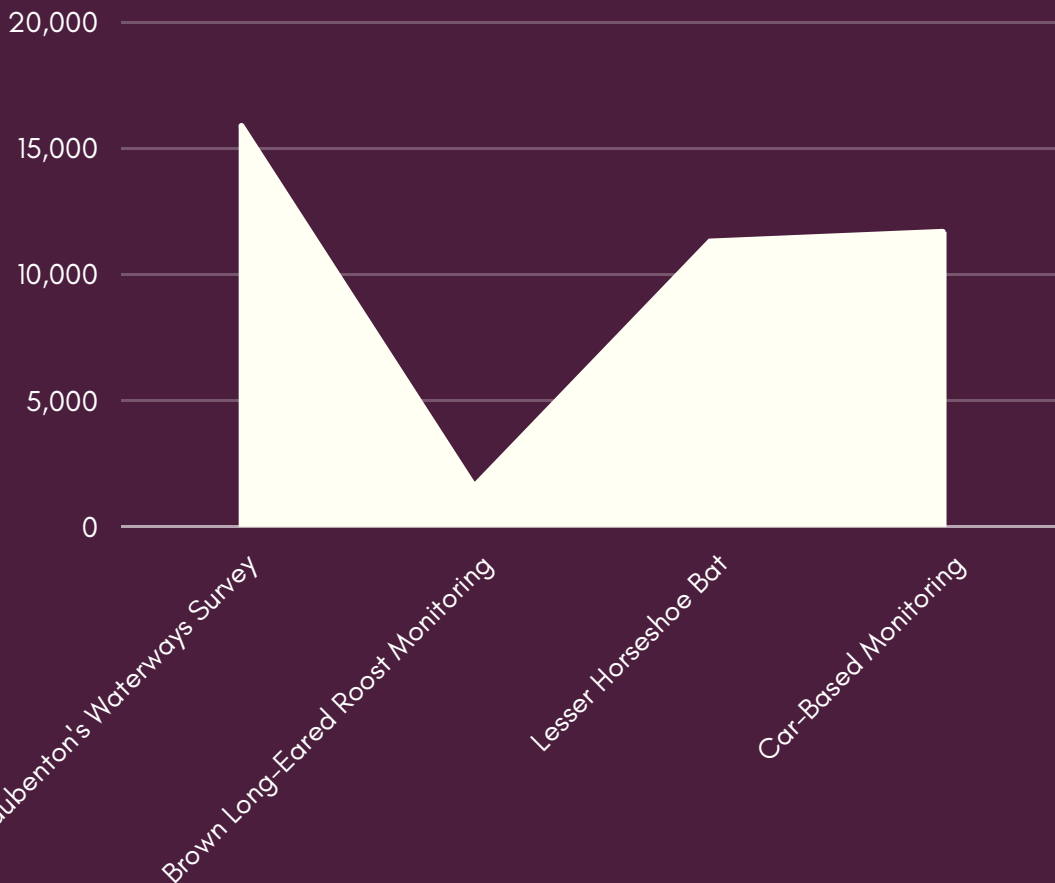


FIGURE 1.

Number of Bat Passes and Bat Counts Recorded during Summer Monitoring in 2021

Main Objectives pursued and achieved during 2021

education

conservation

community engagement

research

collaboration

EDUCATION

Ireland currently is home to 9 resident species of bat, all of which are protected under the Wildlife Act 1976 and subsequent amendments. It is an offence to intentionally disturb, injure or kill a bat or disturb its resting place.

Levels of education in Ireland differ in terms of knowledge that bats are resident here and also around their protected status. A substantial proportion of Bat Conservation Ireland's work is dedicated to educating the public about bats and addressing conflicts that can sometimes arise between bats and householders, where bats are very likely to roost.

Our educational activities include the following:

- Answering bat-related queries through our website and Facebook page;
- Facilitating and updating educational material through 3 websites:
 - Bat Conservation Ireland - www.batconservationireland.org
 - Learn About Bats - www.learnaboutbats.com
 - Bats and Bugs - www.batsandbugs.ie
- Organising bat walks and talks for the general public;
- Conducting and participating in seminars and workshops to facilitate additional learning for our members and the wider public;
- Issuing a quarterly Newsletter to update our members on our work;
- Hosting our triennial bat conference to bring together bat experts and share latest research and data;



EDUCATION

Queries

Bat Conservation Ireland operates a queries service through email and our social media platforms, which is facilitated by its staff members. While each query is individual in nature, in general queries can fall into a number of different categories as follows:

1. Householders who have a bat roost in their house and either
 - a. need further information;
 - b. the roost has become problematic and they need advice about what to do;
 - c. bats are entering the dwelling space in their house and they need advice;
 - d. they want to carry out works to their property and need further advice;
 - e. they want the bats removed and relocated.
2. A member of the public has found a grounded bat and needs further advice;
3. A member of the public wants to object to planning permission and either
 - requests assistance from Bat Conservation Ireland; or
 - need further information in relation to bats and planning permission
4. A member or member of the public wants to learn more about bats and would like more information on any courses run by Bat Conservation Ireland or educational materials for children
5. Student enquiries about internships or participation in research projects

In 2021 staff dealt with approximately 692 queries; 567 by e-mail through our website and 125 through our Facebook messenger.

Bat Conservation Ireland, sees this service as essential for educating the general public around bats' status as a protected species, which in the long-term leads to better outcomes for bats.

EDUCATION

Online Presence - website

Bat Conservation Ireland's main website - www.batconservationireland.org - provides general information about the organisation and what we do and also provides general information about bats and more specifically to householders on bat roosts. Our website is an effective educational tool, as the following statistics will verify:

Page Views: 152,037

Unique Page Views: 118,518

Bat Sightings Submitted: 318

The screenshot shows the homepage of Bat Conservation Ireland. At the top, a dark purple banner contains the text "An all-Ireland charity that promotes the conservation of bats and their habitats". Below this is the website's logo, which features a stylized bat in flight and the text "BAT CONSERVATION IRELAND". To the right of the logo are navigation buttons for "JOIN", "DONATE", and "SHOP", along with social media icons for Facebook and Twitter. A shopping cart icon indicates "0 ITEMS - €0.00".

The main content area is divided into six columns with the following headers: "Who We Are", "What We Do", "Irish Bats", "Get Involved", "In Your Area", and "Search".

- Who We Are:** A purple box with the heading "WHAT IS A BAT?". The text reads: "Bats are mammals, with fur covered bodies, they are warm blooded and give birth to live young. Mothers feed their newborn babies milk. Bats are the only mammals that undertake true flight." Below the text is a button that says "Find out more about bats" and a photograph of a bat in flight.
- Irish Bats:** A purple box with the heading "NEED ADVICE ABOUT A BAT ROOST?". The text reads: "We'll endeavour to help all we can with your questions about bat roosts. Take a look here for information and further details." Below the text is a button that says "Give me some advice" and a close-up photograph of a bat's face.
- In Your Area:** A dark blue box with the heading "FOUND A GROUNDED BAT?". The text reads: "Bats sometimes appear in houses or on the ground outdoors during the day time. There is a range of options to help a bat back on the wing again, but what to do depends on the situation." Below the text is a button that says "What to do with grounded bats" and a photograph of a bat lying on the ground.

EDUCATION



Learn About Bats
with Bat Conservation Ireland



Bat Conservation Ireland runs a website that provides educational material for our younger bat enthusiasts, aged 6 - 12 - www.learnaboutbats.org. Children can learn about bats and their lifecycle, download materials, which provide a fun way to enhance their learning and there is also a resource section for teachers, providing materials they can bring into the classroom. The statistics in 2021, for Learn About Bats are as follows:



Page Views: 23,530

Unique Page Views: 18,083



EDUCATION

Online Presence - Social Media

Bat Conservation Ireland's runs two social media accounts on Facebook and Twitter. Facebook provides us with the opportunity to engage more on a community level, with members, supporters and across our 10 bat groups. Twitter, on the other hand, gives us the opportunity to reach out more to the science-based community and share more of our research projects, data and papers.

In 2021, we had a large increase in our social media following over the course of the year. Followers increased by 969 to 8,595 and our page likes increased similarly by 863 to 8,474.



EDUCATION

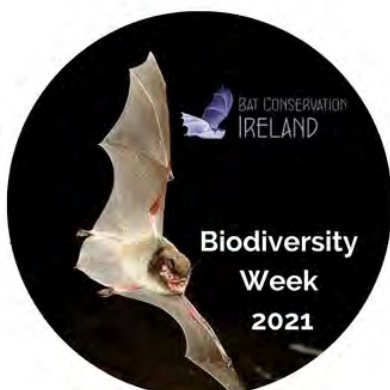
Events

2021 saw us enter the second year of the pandemic, with the country experiencing a very restrictive lockdown for the first half of the year. The Council took the decision to maintain a moratorium on most group activities over the summer of 2021, given the uncertainty of the unfolding public health situation. This meant that most of our necessary training and educational events continued to be held online.

Bat walks and talks really don't lend themselves well to an online forum, as the sights, sounds and experience of a bat walk is best carried out in-person, so there were minimal bat walks held over the summer of 2021. Additionally, the triennial bat conference was postponed again, with the hopes that it can be held in 2023.

Key Events for Bat Conservation Ireland carried out in 2021 were:

- Digital Biodiversity Week, a series of online events and supporter engagement, which showcased a variety of activities;
- Roll out of 'Thursday Talks' series, which saw bat specialists share their expertise on specific areas of bat conservation and research;



EDUCATION

Events

- Roll out of the 'Tuesday Training' series which introduced a new online training course - 'An Introduction to the World of Bats';
- Delivery of a 4-module training course to NPWS staff on bat species, bat surveys and bat handling and identification;
- Carrying out a bat walk in the Phoenix Park, as part of it's Biodiversity Festival;
- Participating in the Rediscovery Centre's 'Lets Talk Science Festival', which reached 35,000 students;
- Dublin Bat Group carrying out an online talk on behalf of Dun Laoghaire and Rathdown (DLR) County Council on bat species, bat habitats and where to find bats;

Online presentations/talks carried out by Bat Conservation Ireland in 2021 were:

- 7 February 2021 - "Bats & Trees" for Rathcoole Wildlife Group - Tina Aughney
- 23 April 2021 - "How Can Community Groups Help Their Local Bat Populations" for Burren Beo - Tina Aughney
- 25 March - "Bats in Ireland" for Caving Conference - Tina Aughney



Bat Sounds

What do bats sound like when they echolocate?

EDUCATION

Biodiversity Week 2021

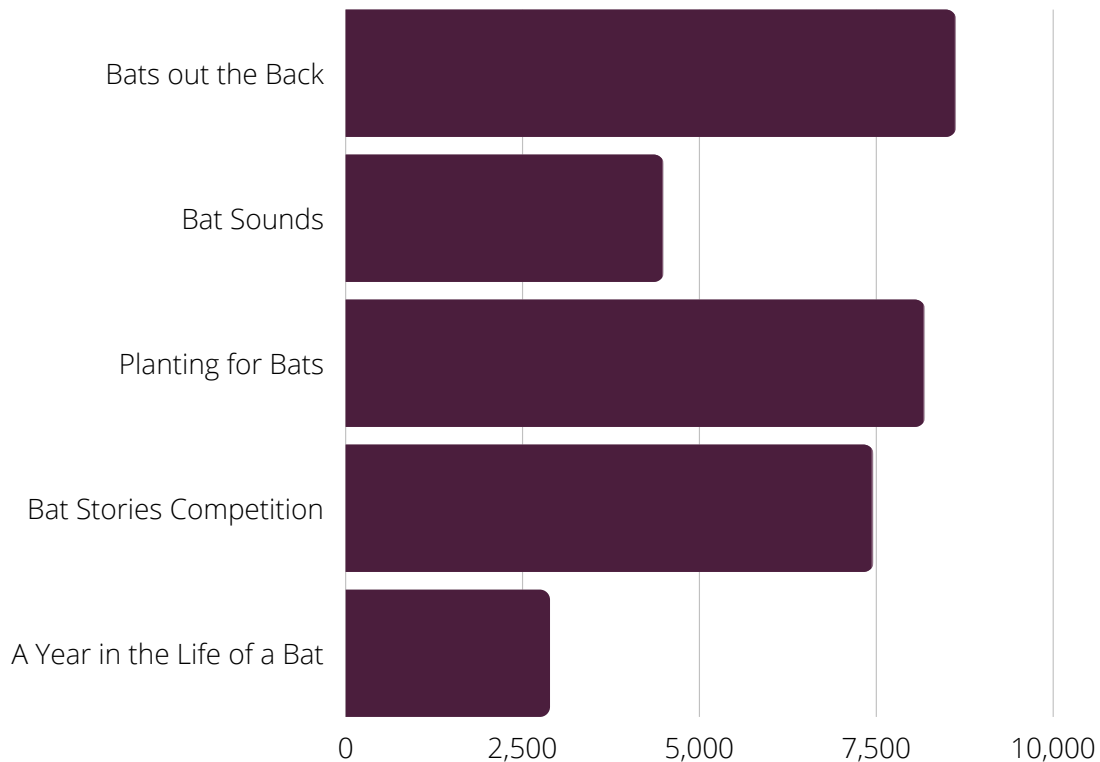
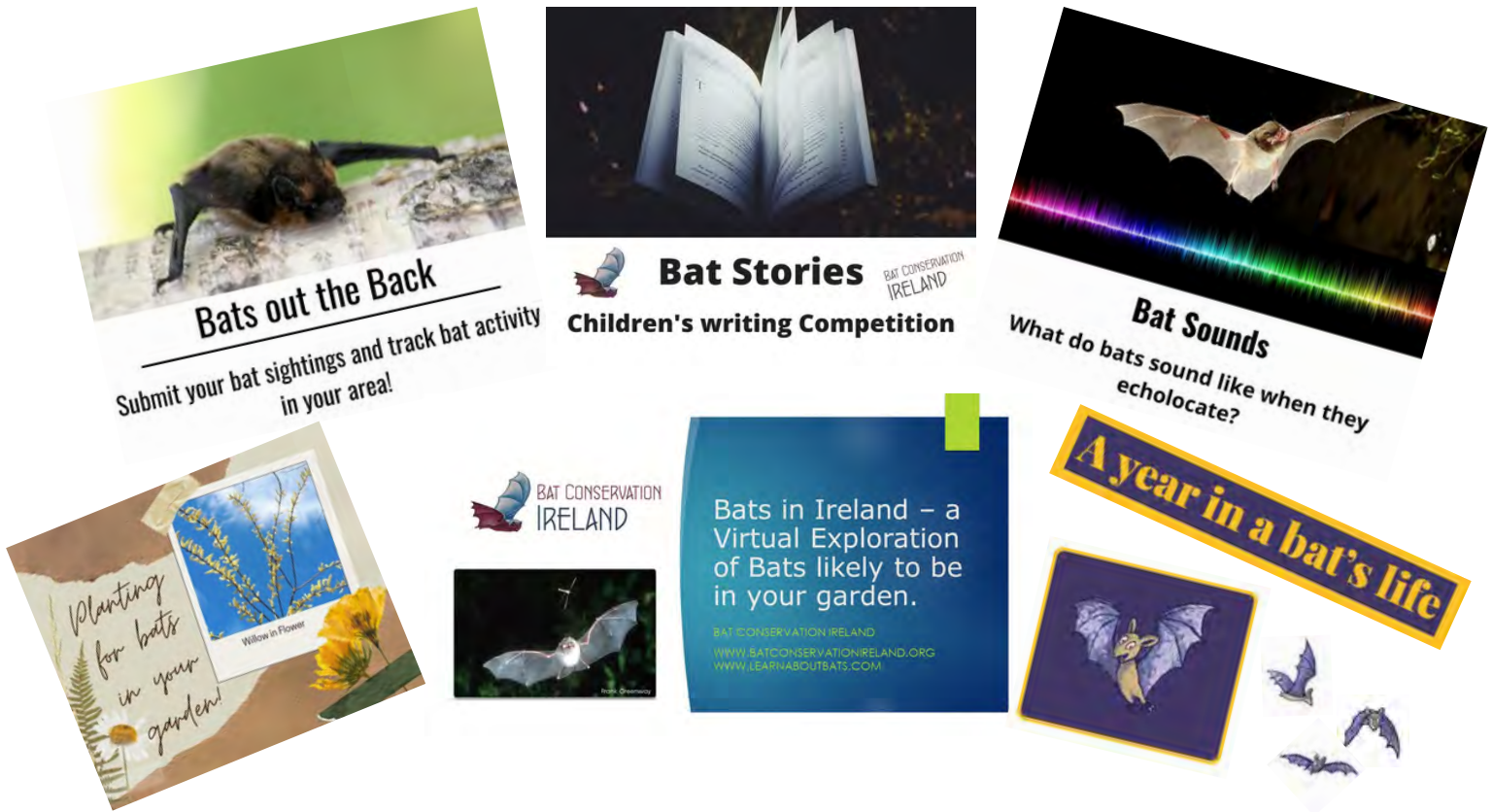
Biodiversity Week is normally a key week in the calendar for Bat Conservation Ireland in terms of hosting bat walks and talks at various locations around the country. As significant health restrictions were still in place in May 2021, Bat Conservation Ireland planned for a series of online events and activities. Our activities were as follows:



- 'An Introduction to bats in Limerick' - Facilitated by Limerick Bat Group
- 'Bats in Ireland - a Virtual Exploration of Bats likely to Visit your Garden' - Tina Aughney, Bat Conservation Ireland
- Thursday Talk 'Nathusius' Pipistrelle in Ireland: An Overview' - Paul Scott, Nathusius Pipistrelle Research Group
- 'Using heterodyne bat detectors' - Facilitated by Limerick Bat Group
- 'How can community groups help their local bat populations?' - Tina Aughney, Bat Conservation Ireland
- 'The Acoustic World of Bats' - Tina Aughney, Bat Conservation Ireland
- Bat Stories - Children's Writing Competition
- 'Planting for Bats' education campaign on bat friendly flora run on social media throughout the week
- 'Sounds of Bats' education campaign run on social media throughout the week
- 'Bats out the Back' bat sightings campaign run on social media throughout the week
- 'A Year in a Bat's Life' education campaign on the different stages of bat development in a 1 year period run on social media throughout the week

EDUCATION

We had excellent online reach with this education programme, as the following infographic confirms:



EDUCATION

Heritage Week 2021

In March 2021, we applied to the Heritage Council for funding as part of their 'Community Heritage Grants Scheme' to fund a project called 'Neighbourhood Bats, with a Little Help from Neighbourhood Citizen Scientists'. The aim of this project was to use the existing structure of the Bat Groups around the country to engage with local communities and carry out a citizen scientist sample bat monitoring project over a 6-week period.

As part of Heritage Week this year, the bat groups gave an update on their individual monitoring projects, as part of the overall Neighbourhood Bats Project. Each day during Heritage Week we featured one of the groups, with an updated on our Facebook Page. This was to highlight the importance of Citizen Science Projects, but also to meet our commitments under the requirements of this grant.

Stats for engagement of these posts are as follows:

Group	Post Reach	Post Engagement
Galway Bat Group	1,679	85
Mayo Bat Group	1,355	47
Meath Bat Group	1,470	59
Limerick Bat Group	1,468	47
Midland Bat Group	1,604	27



EDUCATION

Training

Irish Bat Monitoring Programme

Bat Conservation Ireland runs Ireland's only All-Ireland bat monitoring programme, as part of our conservation efforts. Volunteers are essential for us to carry out the level of monitoring that we do. Every year new volunteers are trained as part of this programme and this not only helps create more citizen scientists around the country, but also helps develop unique skills for those involved.

In 2021, our Project Managers trained 8 new volunteer teams on the Car-Based Monitoring Scheme and 63 new volunteers were trained for the for the All Ireland Daubenton's Waterway Survey, 32 of whom successfully completed and submitted surveys for this scheme. All of the new volunteers were trained online, due to the health restrictions in place at the time.

An Introduction to the World of Bats

Bat Conservation Ireland also developed it's online training capabilities in 2021 with the development of a new 4-Module course - 'An Introduction to the World of Bats'. The course ran over 4 months from June to September and gave participants the opportunity to learn the basics of bat ecology right through to being able to carry out a simple survey.

25 participants registered for all 4 modules and 4 participants registered for single modules.



EDUCATION

Training

Thursday Talks

From April to August 2021, Bat Conservation Ireland ran a series of online talks on areas of interest to members and supporters. The

purpose of these talks, was to provide an educational space for bat enthusiasts to learn more about bats in lieu of being able to participate in bat walks and talks around the country.

Additionally, Bat Conservation Ireland used the opportunity to raise funds to help support the work of bat rehabbers around the country by asking attendees to make a donation when registering. Overall €828 was raised and was donated to the Irish Wildlife Trust for distribution to bat rehabbers.

The talks carried out over the period were:

- “Nathusius’ Pipistrelle Migration and AudioMoths on the South Coast of England” - Adrian Bicker
- “Nathusius’ Pipistrelle in Ireland, an overview” - Paul Scott, CEcol CEnv MCIEEM
- “Protecting the lesser horseshoe bat in Ireland -twelve roosts in four counties” - Dr. Kate McAney, Vincent Wildlife Trust
- “Challenges and opportunities for protecting global bat populations” - Dr Jon Flanders, Bat Conservation International

Overall approximately 125 participants attended the talks.



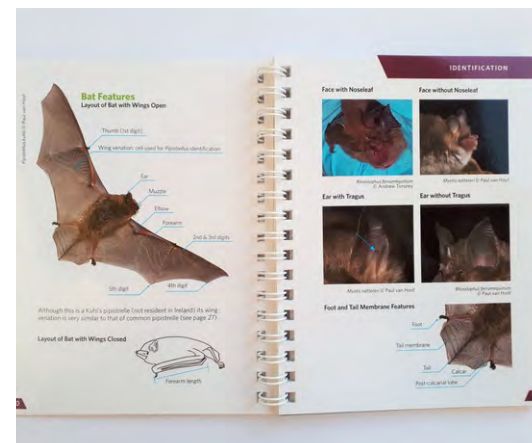
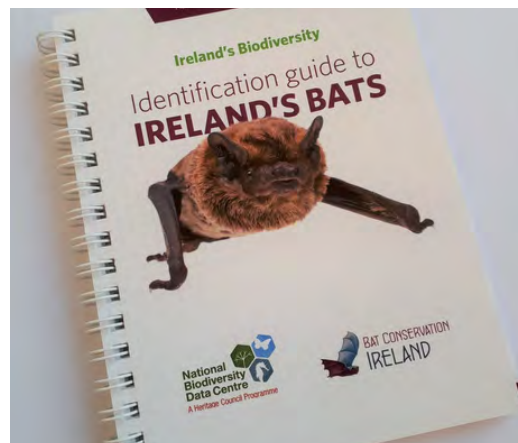
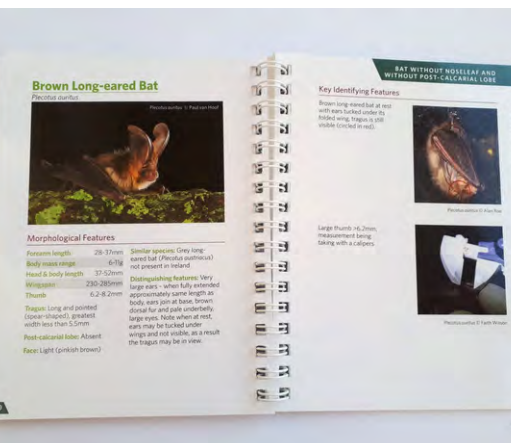
EDUCATION

Publications

In 2021 Bat Conservation Ireland and the National Biodiversity Data Centre worked together to produce the first field guide to Irish bats in book format. The 'Identification Guide to Ireland's Bats' includes Ireland's nine resident bat species and two vagrant bat species. The 60-page, ring-bound, pocket-sized publication is easy to read, and helps readers distinguish Irish bats based on their morphological features. There are lots of photos and illustrations of each species and their distinguishing traits. In addition, each species is provided with descriptions of its distribution, habitats, flight style, roosts and emergence. Also, because so much bat identification in the field is based on sounds, we included QR codes that link to sounds of typical echolocation calls for each species from both tuneable and full spectrum bat detectors.

This field guide is part of the NBDC's Ireland's Biodiversity series of identification swatches and booklets and was co-authored by Andrew Torsney and Bat Conservation Ireland staff member Niamh Roche.

Funding was provided by The Community Foundation for Ireland and National Parks and Wildlife Service (NPWS) as part of the 2021 Ecosystem Services Grant (for more information on this project please see page 55).



Cover and Sample Pages from 'Identification Guide to Ireland's Bats'

EDUCATION

Publications

Bat Conservation Ireland contributed to a number of publications in 2021, as follows:

Wildlife in Buildings

Dr. Tina Aughney contributed to this publication produced by Bird Watch Ireland, which sought to link our built and natural heritage.

<https://birdwatchireland.ie/wildlife-in-buildings/>



'Swallows of the night': Bats are fascinating and oft-misunderstood

Dr. Tina Aughney, co-authored a piece for Today's Farm on bats and bat habitats and the importance of hedges, buildings and watercourses for their habitat



Picture: Tina Aughney



<https://www.teagasc.ie/media/website/publications/2021/Environment---Bats---Swallows-of-the-night.pdf>

EDUCATION

Publications

Biodiversity Ireland - Spring 2021

Biodiversity Tales - Bats

Dr. Niamh Roche contributed to this publication produced by the National Biodiversity Data Centre, to update readers on the projects Bat Conservation Ireland were working on in 2021, including:

- Ecosystems Services Project
- ID Guide to Irish Bats
- Woodland Bat Monitoring Scheme
- Irish Bat Monitoring Programme
- New series of online 'Thursday Talks' on bats and bat research

[https://biodiversityireland.ie/publications-category/biodiversity-ireland/Spring 2021](https://biodiversityireland.ie/publications-category/biodiversity-ireland/Spring%2021)

BIODIVERSITY TALES

Bats

At Bat Conservation Ireland, we are very excited about a couple of new projects getting underway this year. We are proud recipients of a grant from the Community Foundation for Ireland for a project, 'Identification of Irish Bats and their Insect Prey'.

There are two aims to this project, the first is to help people improve their skills in identifying bats by producing a field guide, and the second is to research the kinds of insects that bats are consuming and what ecosystem services Irish bats provide. To do this, we have teamed up with the National Biodiversity Data Centre (NBDC) and University College Dublin. With our friends at the NBDC, we are currently writing an Identification Guide to Irish Bats to fulfil the first aim. For the second, with Prof. Emma Teeling's Bat Lab in UCD, we are starting a whole new bat citizen science initiative. Later this summer, we will be asking bat roost owners to volunteer to collect bat droppings to send for analysis at the Bat Lab. All equipment and instructions will be supplied by us so, once roost owners register on the project website, we will send them a survey pack, so they can collect the droppings safely. We are busy setting up a website for the project at the minute and will be launching it during the summer. Do watch this space for the new Field Guide and Citizen Science project coming soon!

Another new project this year is a pilot woodland bat monitoring scheme, funded by the National Parks and Wildlife Service. We currently have no way of checking annual trends in Natterer's or Whiskered bats, two of Ireland's rarer bat species. This pilot will help determine whether we can use stationary Audiomoth bat detectors in woodlands to monitor these species. We are collaborating with the UK Bat Conservation Trust on this since they have also been trialling Audiomoth detectors in English woodlands.

And as if that wasn't enough to look forward to, we are also running a series of online talks. On May 20th, Paul Dooh talked about Nathusius' pipistrelle in Ireland.

We have Kate McAney of the Vincent Wildlife Trust in July, and Jon Flanders of Bat Conservation International, who will be speaking about Bat Conservation International's Endangered Species Programme in August. Keep an eye on our events page (www.batconservationireland.org/events) for updates.

And, of course, we will also continue monitoring yearly trends in five bat species, with the help of volunteers all across the island. If you are interested in getting involved, please contact us (www.batconservationireland.org/contact-us). We always need volunteers with the all-island Dubliner's survey, which takes place in August and is particularly suited to those new to bat recording. The NPWS funds these bat surveys and additional grant assistance is provided by the Northern Ireland Environment Agency.

Dr Niamh Roche
BAT CONSERVATION IRELAND
niamh@batconservationireland.ie



Soprano pipistrelle
© Tina Aughney

EDUCATION

Media

Bats and bat conservation work received good coverage in 2021. As public health restrictions continued throughout the summer, the public's interest in bats remained consistent. In particular, our event during Biodiversity Week - 'Bats in Ireland - a Virtual Exploration of Bats likely to Visit your Garden' - received a substantial amount of promotion when it was mentioned on The Ryan Tubridy Show on RTE Radio 1 on 13 May 2021.

Additional media which featured Bat Conservation Ireland, or which we contributed to were:

- 13 April 2021 - Today Show with Maura & Daithi featured a piece on the Limerick Bat Hospital, with an interview with Tina Aughney, Bat Conservation Ireland on bats and the importance of bats;
- 19 June 2021 - 'The Liffey' documentary featured Anna Collins of Bat Conservation Ireland bringing a group of local enthusiasts to Newbridge Linear Park to keep tabs on the bat population along the Liffey in Kildare;
- 29 July 2021 - *'Irish researchers ask public to bring them bat poo for new study'* - buzz.ie



Dr Emma Teeling of UCD with an example of a myotis species bat. Photograph: Bryan O'Brien

Prof. Emma Teeling, UCD Bat Lab and collaborator on the Ecosystems Services Project

EDUCATION

Media

- 30 July 2021 - *'Poop scoop job for a brave person: UCD wants bat droppings'* - Allison Bray, Irish Independent
- 30 July 2021 - *'Bat poo in your garden? Researchers want to hear from you'* - Vish Gain, siliconrepublic
- 30 July 2021 - *'Citizen science project spreads the word about Irish bats'* - TechCentral.ie
- 6 August 2021 - *'Another Life: Bat poo reveals the winged world of the night'* - Irish Times



Blathnaid Treacy visits the Bat Hospital

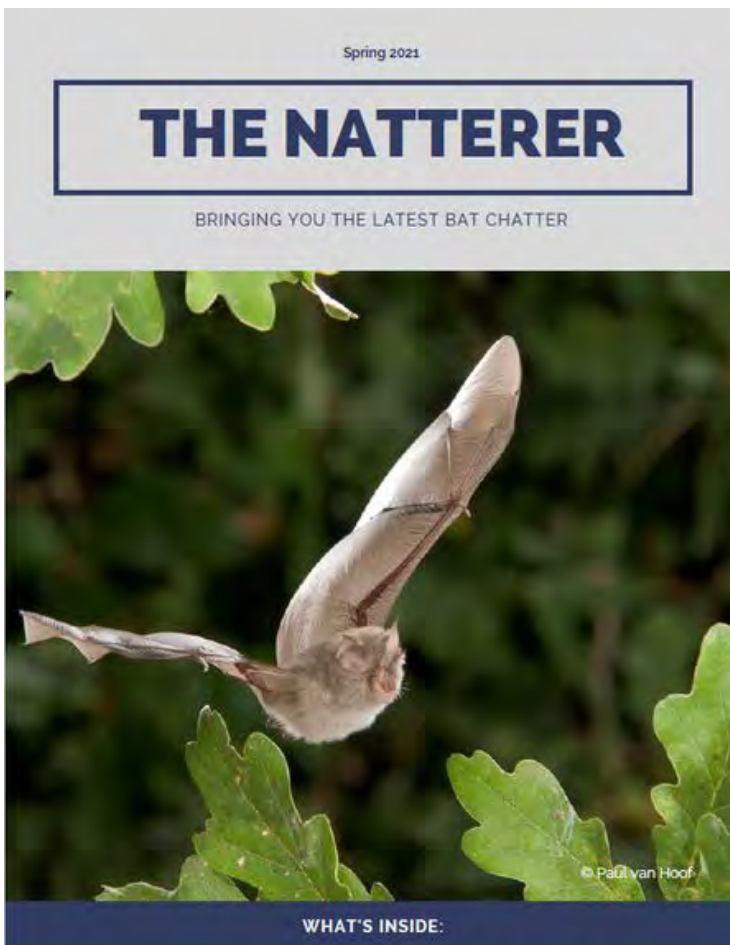
Tina Aughney, Bat Conservation Ireland explaining the importance of bats at the bat hospital in Limerick

EDUCATION

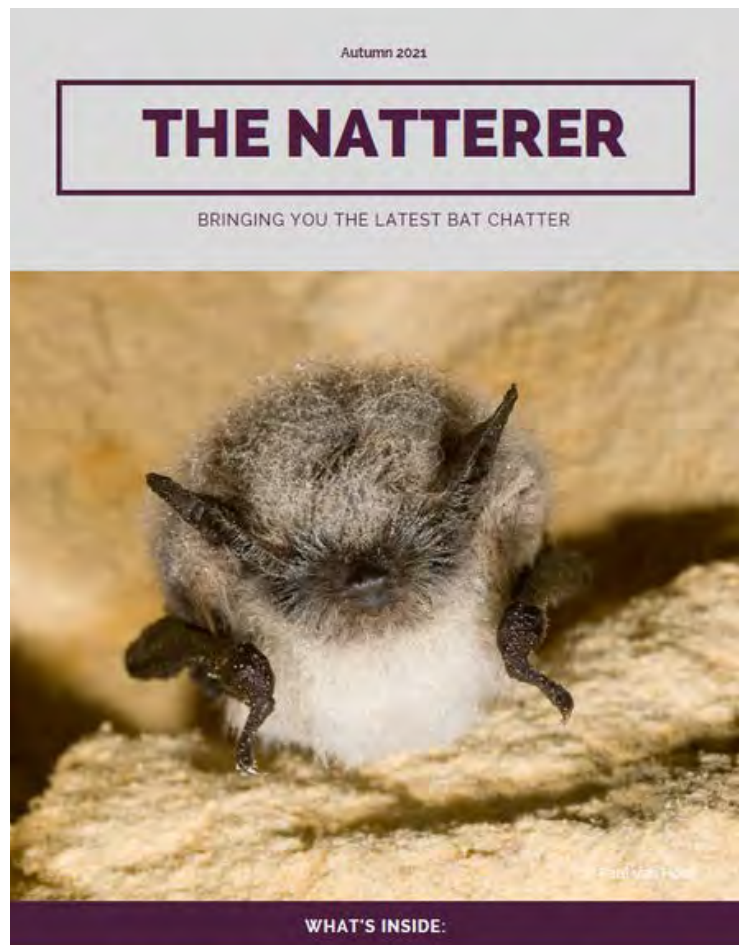
Newsletter

Bat Conservation Ireland publishes a newsletter to update members about the work that we are doing and to share the latest information about developments in the world of bat conservation. In 2021 we published 2 newsletters as follows:

- The Natterer Spring 2021
- The Natterer Autumn 2021



Ecosystems Services Project - 3 Midsummer Nights' Bat Survey - 4 Backyard Winter Survey - 7 Biodiversity Week 2021 - 9



Bat Identification Field Guide - 3 Thermal Imagery Insight - 4 Bat Research Symposium - 9 Neighbourhood Bats - 12

COMMUNITY ENAGAGEMENT

Bat Groups

There are currently 10 bat groups around the country that are affiliated with Bat Conservation Ireland. Galway Bat Group preceded the foundation of Bat Conservation Ireland, with its formation going back to the 1980's. The Bat Groups offer the opportunity to members to get more involved in activities in their local communities, as well as develop their bat-related skills, such as carrying out roost counts and bat surveys. It is also an opportunity for like minded individuals to come together around a shared interest in biodiversity and our natural wildlife.

The bat groups currently affiliated with Bat Conservation Ireland are:

- Cavan Bat Group
- Donegal Bat Group
- Dublin Bat Group
- Galway Bat Group
- Kildare Bat Group
- Limerick Bat Group
- Mayo Bat Group
- Meath Bat Group
- Midlands Bat Group
- Wicklow Bat Group



Additionally Northern Ireland Bat Group exists as an individual entity, however there are close links between Bat Conservation Ireland and all of the bat groups around the country. 2021, was again difficult for the bat groups to get out and about, considering the health restrictions in place, however they did well to engage the public, despite the constraints in place. Short reports from each of the groups follows.

COMMUNITY ENAGAGEMENT

Dublin Bat Group

- Tribute to Aoibheann Gaughran



As a group we are still coming to terms with the very sudden passing of our dear friend (and key DBG member) Aoibheann in December. Aoibheann was a very active member of the group and a great friend to us all. Her enthusiasm, smiley face, jokes and friendship will be sorely missed.

Aoibheann made an impression on everyone she met, and this was evident in the outpouring of beautiful messages from various groups, friends and family wide and far on her passing. Aoibheann's family, friends, and colleagues were enormously generous in donations to Bat Conservation Ireland in her memory.



Plans are under way to use the funds donated to honour Aoibheann's memory in the best (and battiest) way possible.

We all miss her very much!

Dublin Bat Group

COMMUNITY ENAGAGEMENT

Dublin Bat Group

Due to the ongoing covid restrictions throughout 2021 the DBG was not as active as we would have liked.

However, we still managed to get in the odd talk (via zoom of course!), some roost surveys and we made some more plans for the group in 2022.



Talks

In March, Kevin Delahunty one of our members gave an online talk on bats on behalf of Dun Laoghaire and Rathdown (DLR) County Council. The talk was aimed at the general public with limited existing knowledge of bats and covered topics including:

- Bat species in Ireland and DLR area.
- Interesting facts on our bat species.
- Important habitats that bats depend upon; and
- Where to find bats in DLR.

Funding

We are grateful to Dun Laoghaire Rathdown County Council for making a generous donation to the Dublin Bat Group for undertaking the talk, thanks to both Kevin and DLRCoCo for their contribution. We look forward to working with DLRCoCo in the future.

Bat Surveys

The group undertook roost emergence surveys at two different locations in 2021. As part of an ongoing project at St. Enda's Park Rathfarnham members of the DBG undertook roost emergence surveys at the nature building within the park. A total of 12

COMMUNITY ENAGAGEMENT

Dublin Bat Group



Leisler bats were recorded emerging from the building as well as two common pips. This is believed to be one of the oldest known Leisler's roosts in Dublin.

We were also contacted on our Facebook page by the principal of a school in south Dublin who thought they may have some bats roosting in their building. One of our members went to check it out, they were absolutely delighted to record 30 Leisler's emerging from the building. These two roosts are possibly the only two currently known Leisler's roosts in the Dublin area.

We look forward to getting back to St. Enda's this year to do some follow up surveys of the building, wider park and possibly of the trees too (something we started in 2019 before covid put a stop to our tree surveying plans - see below).

Tree Roost Surveys

Tree roosts are notoriously hard to find given the transient nature of bats (Leisler's can move between trees roosts every couple of nights!) and usually require a tremendous amount of survey effort to find. One of the most exciting finds of 2019 was the discovery of a number of Daubentons tree roosts close to the River Dodder. These were discovered by a consultancy undertaking bat work as part of the Dodder Greenway project. The roosts were identified by radio tracking and have given us a great insight into where and how Daubentons are roosting along the River Dodder. Radio tracking is one of the best methods for finding trees roosts but this requires the use of very expensive equipment and a lot of man hours! Inspired by this find as well as Henry Andrews work on tree roosts in the UK the DBG decided that one of the groups aims going forward would be to try and find more tree roosts in the Dublin area. In late 2019 the group scoped out a number of trees in Fernhill Park that they planned to survey on an ongoing basis, however, covid soon put a stop to these plans. We hope to pick up these surveys again in 2022 and beyond focusing on sites such as St. Enda's and Fernhill. Surveys are undertaken using an endoscope and under licence from the NPWS.

COMMUNITY ENAGAGEMENT

Galway Bat Group

Galway Bat Group carried out limited activities in what is usually a very busy calendar of events. They carried out 1 Brown Long-Eared Roost Count at Lydacan Castle, Galway in June 2021.



In September, when restriction had lifted further, Galway Bat Group, carried out a bat walks at Ardrahan, Co. Galway by invitation of the Ardrahan Environment Group. Participants pre-registered for the walk and there was full attendance on the night.

Galway Bat Group were very active on their Facebook Page over the course of the year, sharing lots of Bat Conservation Ireland posts, research and general information about bats with their followers and supporters.



Bat Walk by Galway Bat Group at Ardrahan, Co. Gawlay

COMMUNITY ENAGAGEMENT

Kildare Bat Group

Kildare Bat Group carried out a number of activities compliant with public health restrictions in place at the time, in 2021 as follows:



Roost Counts

- 21/06/2021: Mid Summer's Night: Bat Count, Irish Peatland Conservation Council, Lullymore, Co. Kildare;
- May, June & July 2021: 2 x Brown Long-Eared Bat Roost Counts, as part of the annual Brown Long-Eared Roost Monitoring Scheme;
- 3/09/2021: Emergence count with Killian Brennan (NPWS), Kildangan, Co. Kildare;

Bat Surveys

- 10/04/2021: Naas harbour to Old Town Bridge field trip;
- August 2021: All Ireland Daubenton's Waterways Survey: 7 sites surveyed;
- Derrybeg Farm Hedgerow Project, Celbridge, Co. Kildare: 4 sites surveyed;
- 23/09/2021: Bat Survey Wicklow Bats with Andrea Webb NPWS;

Media

- 14/07/2021: Filming of 1st Session with RTE documentary 'The Liffey', Episode 6;
- 14/10/2021: Filming of 2nd Session with RTE documentary 'The Liffey', Episode 6, with Newbridge Tidy Towns;

Events/Bat Walks

- 19/09/2021: 10th Anniversary outdoor celebration in Donadea Forest Park
- 24/10/2021: Soles Eco Garden Event, Solas Eco Garden Centre, Portarlinton
- 25, 29 & 30 October: Halloween walks in The K Club, Straffan, Co. Kildare
- 19/11/2021: Kildare Bat Group annual meeting

COMMUNITY ENAGAGEMENT

Kildare Bat Group

Projects

- Pilot Woodland Study Project: Donadea Forest Park x 5 nights

Training

Members of Kildare Bat Group continued to upskill in 2021, completing the following courses:

- Child Safety Courses
- Batabilty Workshop
- Tragus Training Workshops
- Bat Care Course
- Bat Rehabilitation Essentials: Caring for Mothers and Pups
- Common Injuries in Bat Rehabilitation
- Know your Locality
- Teamwork Module

Bat Rehabilitation

Kildare Bat Group continued to offer advice and take in grounded bats & pups under NPWS license.

COMMUNITY ENAGAGEMENT

Limerick Bat Group

Limerick Bat Group has been working with the community of Limerick towards conserving bats, raising awareness of their importance and increasing understanding of bats since 2018.

Artist in the Community Scheme

Since August 2021, Limerick Bat Group have been collaborating with the artist/composer Fiona Linnane, to encourage more people to appreciate and understand bats. Fiona and Limerick Bat Group hope to facilitate some creative workshops with interested parties, which could happen over the summer, outdoors and of course will be bat-centric!

Options for collaboration may be to use the bat calls recorded on the detectors to create a piece of music, or an audio documentary about the group/the bats, or creating installations of some sort where visitors could hear the call of the bats. So, while raising awareness of the group or the bats might not be the main aim, it would most likely have that effect! It's very open-ended, we can essentially do what we like!

Lesser Horseshoe Bat Night Roost Connectivity Project

The Lesser Horseshoe Bat Project works with local landowners and ties in with the QGIS project, to map Limericks Lesser Horseshoe Bats and to improve their range and connectivity within the county. Limerick Bat Group has enjoyed working with lots of landowners and organisations, assessing the suitability of farms, carrying out site visits and desktop surveys. Limerick Bat Group are purchasing a new bat detector in 2022 to ensure data quality and that data collected can be analysed effectively.

There are, however, challenges with costs involved in building the night roosts and

COMMUNITY ENAGAGEMENT

Limerick Bat Group

adjustments to the project may need to be made to benefit the Lesser Horseshoe Bats across Limerick.

The group will still assess potential roosts and provide advice where they can, but they have decided to spend their funds on getting another static detector for groundtruthing records and tying the LHB project in with the QGIS project more. The addition of a new static detector will be a welcome addition to Limerick Bat Groups equipment repertoire in 2022.

This project ties in with their QGIS training and they hope to work towards mapping and improving habitat connectivity for Lesser Horseshoe Bats in Limerick.

QGIS Training

Limerick Bat Group have run several training sessions on QGIS for techie members of the group. This has included a walk through of the QGIS software and an introduction to the data collection and analysis requirements for surveying and mapping the profile and distribution of bat species present in Limerick. These members will assist with data analysis tasks and management of the LBG database. They hope to train members in habitat mapping and understanding and mapping connectivity for bats in 2022 as well as the use of QField for the Urban Bats / Bats and Biodiversity app.

Development of the Urban Bats/Bats and Biodiversity App

This project is at preliminary stages but it should be something that anyone with a smart phone in Limerick can take part in. LBG is developing an App that urban users in particular can use to assist in the monitoring of bats and biodiversity in their neighbourhood. The App will be a QGIS based free app that has 3 pages: an intro page, a day time survey and a night time survey page. The app will gather data on biodiversity and assist in the assessment of suitability of various locations for bats. It will also educate users on bats and biodiversity that may be in their neighbourhood and the use of GIS for recording biodiversity data.

COMMUNITY ENAGAGEMENT

Limerick Bat Group

This App will be further developed by LBG Chair, Tanya Slattery with assistance from Micki and Jean (members of LBG) in 2022

Collaborative Events

Limerick Bat Group work closely with Bat Rehabilitation Ireland and one of our committee members Susan is the founder of BRI. In 2021 we had a talk and tour of the bat hospital online titled "Bat Rescue - An Introduction" on Wednesday, 21 July 2021 (with Susan Kerwin, Bat Rehabilitation Ireland & Limerick Bat Group). The talk and tour was a great success despite technology issues. There were lots of questions and many people got to see bats up close and learn what to do in an emergency with bats. LBG are hoping to make this a yearly event and keep increasing awareness of the public to bats.

LBG also carried out 2 online events, as part of Biodiversity Week:

- 'An Introduction to bats in Limerick' - Facilitated by Limerick Bat Group;
- 'Using heterodyne bat detectors' - Facilitated by Limerick Bat Group

Both of these events were run in collaboration with Bat Conservation Ireland and received funding from the Irish Environmental Network, as part of the Biodiversity Week funding stream.



COMMUNITY ENAGAGEMENT

Mayo Bat Group

Mayo Bat Group is still in it's infancy and the health restrictions in place in 2021, prevented the group from getting out, raising awareness of the group and growing members. However, Mayo Bat Group were very active on their Facebook Page, sharing information and awareness around bats and bat rehabilitation.



Bat Conservation Ireland had set up a fundraising page for Mayo Bat Group in late 2020 to raise funds to build a bat clinic in Mayo. This fundraiser remained open for 2021, to help Mayo Bat Group raise enough funds to build a custom bat clinic.

Mayo Bat Group were able to build certain parts of the bat clinic in 2021, such as a bat flight cage, which was built in August. This assisted Mayo Bat Clinic to care for more bats, in what was a very busy year in bat rehabilitation.



COMMUNITY ENAGAGEMENT

Meath Bat Group

Meath Bat Group were also hoping to expand their activities and membership in 2021, however Covid 19 interrupted this plan again.

Meath Bat Group did participate in the All Ireland Daubenton's Waterway Survey, carrying out a survey in Moynalty, Co. Meath

Midland Bat Group

Midland Bat Group were also constricted by Covid 19, but were very involved in Bat Conservation Ireland's monitoring schemes as follows:

- All Ireland Daubenton's Waterway Survey
 - various locations
- Brown Long-Eared Bat Roost Count
 - St. Catherine's Church, Ballymacormack, Co. Longford
- Car Based Monitoring Survey - M87 covering Longford, Leitrim and Roscommon



Wicklow Bat Group

Wicklow Bat Group also restricted by Covid 19, were active online posting informative bat and biodiversity posts to the Wicklow Bat Group Facebook page.

COMMUNITY ENAGAGEMENT

Neighbourhood Bats - with a Little Help from Neighbourhood Citizen Scientists

In early 2021, Bat Conservation Ireland applied to the Heritage Council Community Heritage Grant Scheme for funding to run a community project through the county Bat Groups, affiliated with Bat Conservation Ireland. The purpose of this project was to carry out a small scale monitoring of bats at a static location for a 6-week period to see what data could be recorded.

The detectors used for this project were Song Metre Minis, which can record the 9 different species of bat resident in Ireland. The data was then analysed for species identification, to see what type of species was present at each of the sites – 9 in total. It also gave members of the bat groups the opportunity to further develop their skills and engage with their local community at the different sites where the detectors were placed. The group volunteers identified locations, set up the equipment and set it up at the site, monitored the detector through a specialised App on their phone, visited the site on a weekly/bi-weekly basis to check the detector, batteries and SD cards, recorded specific data on custom designed data sheets and returned the SD cards and data sheets for overall analysis.

The data was analysed with Kaleidoscope Pro software, examined by a bat specialist to provide identifications of the bats producing the calls and compiled to look for



COMMUNITY ENAGAGEMENT

Neighbourhood Bats -

with a Little Help from Neighbourhood Citizen Scientists

overall trends in the activity. Additionally, the data was input into the Bat Database which is managed by Bat Conservation Ireland and contains the most comprehensive bat records in Ireland.

The benefits of the project are that there is an increased level of data available on bats throughout the island that can be checked now and into the future for any trends similar to the projects already undertaken by Bat Conservation Ireland. It also allows anyone with no expertise in bats, to contribute to research and monitoring of their local bat fauna.

Sites used for the Neighbourhood Bats Project

	Site		Site		Site
1.	St. Enda's Park, Dublin	5.	A garden in Crossmolina, Mayo,	9.	A garden in Clonanny, Laois.
2.	A garden in Wicklow	6.	St. Benignus Church Grounds, Staplestown, Kildare		
3.	Barna Woods, Galway	7.	Corlea Amenity Walk, Longford		
4.	Janesborough, Limerick City	8.	Moynalty Roman Catholic church farm, Meath		

Bat Conservation Ireland, would like to thank all of the Bat Groups Volunteers and Communities, who participated in this project and the Heritage Council for funding this project.

COMMUNITY ENAGAGEMENT

Citizen Scientist Bat Surveyors

The All-Ireland Bat Monitoring Programme, relies on volunteers to complete surveys, where we train volunteers and give them the skills to carry out surveys on 3 of the 4 schemes managed by Bat Conservation Ireland. Without volunteers, we could not monitor Ireland's bat populations or map their distribution. We are greatly in debt to Irish citizen scientists who gladly give up their time to complete surveys. In any given summer season there can be up to 600 volunteers participating in the numerous schemes we manage. In 2021, 460 volunteers contributed their time and skill to participate in the All Ireland Bat Monitoring Programme, which was an increase of 33 on 2020.



CBM Surveyors pre-Covid

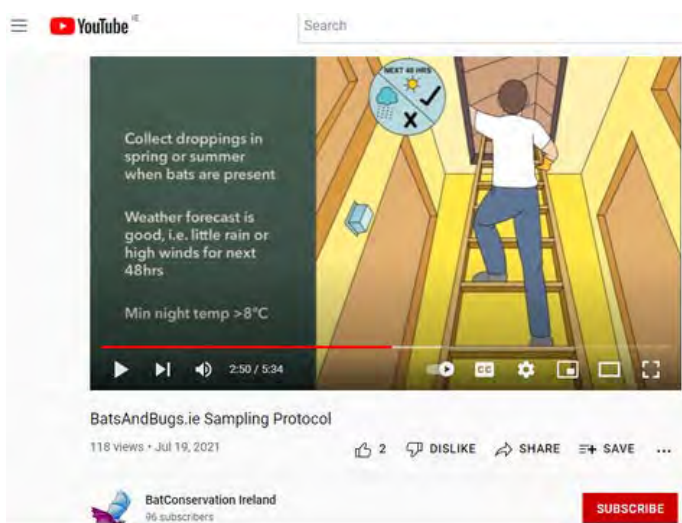
Training is provided for volunteers in a tiered manner, allowing volunteers to participate in schemes according to their level of expertise. Participation in the All Ireland Daubenton's Bat Waterways Survey is the first step for novice volunteers whereby, once completed, each surveyor can identify one species of bat, Daubenton's bat, in flight over waterways. Training consists of an evening lecture followed by field work after dusk.

Once surveyors have expressed an interest in further developing their skills they can participate in training and workshops for other monitoring schemes. Volunteers are also encouraged to join their local bat group to gain further experience. In 2021, training courses were carried out online, due to public health restrictions.

COMMUNITY ENAGAGEMENT

Citizen Scientist Bat Surveyors

An additional recruitment drive was carried out in 2021 seeking citizen scientists who have access to bat roosts. These individuals were asked to sign up to participate in the Bats and Bugs project (see page 55 for more details). The participants were provided with detailed instructions on how to carry out the survey via a Youtube video as well as an instructional leaflet. Each participant was provided with the tools needed to collect bat droppings and send them to UCD for analysis. Over 100 people signed up to the project which is ongoing in 2022.



YouTube Video on how to carry out a bat roost survey as part of the Bats and Bugs Project



Instruction Leaflet on how to carry out a bat roost survey as part of the Bats and Bugs Project

CONSERVATION

Irish Bat Monitoring Programme

Bat Conservation Ireland's main objective is *the advancement of education and the promotion of the conservation and study of bats on the island of Ireland and elsewhere in the world*'. As part of this objective, we monitor Ireland's bats to see how their populations are doing, e.g. are populations increasing, decreasing, or remaining stable. Regular monitoring is the key to picking up any declining (or increasing) trends, which are in turn, important in forming conservation policy and management on a nationwide and EU level. Bat Conservation Ireland manages four monitoring schemes to track trends in bat populations as follows:

1. Car-Based Monitoring;
2. The All-Ireland Daubenton's Bat Waterways Survey;
3. Brown Long-Eared Bat Roost Monitoring;
4. Lesser Horseshoe Bat Roost Monitoring

Car-Based Monitoring

Despite high levels of legal protection for all species, until 2003 there was no systematic monitoring of any species apart from the lesser horseshoe bat in Ireland. To redress this imbalance, The Car-based Bat Monitoring Scheme was first piloted in 2003 and targets the two most abundant pipistrelle species (common and soprano pipistrelles) and Leisler's bat. These species are relatively easy to detect and distinguish from each other on the basis of echolocation calls. The car-based survey makes use of a full spectrum bat detector, which picks up a range of ultrasound that can be recorded in the field and analysed post-survey. This method allows survey work to be carried out by individuals with little or no experience in bat identification since identification is completed post survey work. Nonetheless, all surveyors are fully trained in carrying out the survey method, which can be tricky to implement initially, and are provided with a full set of equipment in order to complete the survey. In this way, results are standardised across the island of Ireland.

CONSERVATION

In 2021, we also reviewed some of the other data that is collected by car-based bat monitoring volunteers. This includes records of other vertebrates, such as hedgehogs and foxes, that occur along roadsides at night.

Summary of the Car Based Monitoring Scheme 2021

Weather in the summer of 2021 was generally favourable for bat surveys, particularly in July when heatwave conditions were recorded across Ireland. Fifty seven individuals participated in surveys of 28 squares around the island. Online training courses were provided for eight new survey teams via Zoom. Data from 54 surveys, all of which had >12 completed transects, were available. In total 11,685 bat passes were recorded, 49% of which were common pipistrelles. The soprano pipistrelle was second most frequently recorded bat species and Leisler's the third most common. Yearly estimates of most species increased in 2021. Confidence intervals of the three target species, common pipistrelle, soprano pipistrelle and Leisler's bats were all above their baseline indices indicating they each show a significantly increasing trend. Nathusius' pipistrelle trends are still unclear but seems to show signs of continued slight increases, whilst the brown long-eared roadside trend in 2021 was reasonably stable. Numbers of observations of both these species are extremely low using the car-based method, leading to wide error bars.

This year we have become increasingly concerned about the yearly estimate for the *Myotis* spp. group which continued a significant downward trajectory. The smoothed trend for this group is well below the baseline and has declined yearly since 2015. Declines have been observed in 23 of 28 survey squares. Pilot monitoring schemes for the two species Natterer's bat and whiskered bat have so far not resulted in cost-effective methods but it appears that either or both may be under pressure, certainly along roadsides. We are giving further consideration about how to approach this issue.



CONSERVATION

The All-Ireland Daubenton's Bat Waterways Survey

This scheme follows a survey methodology devised by Bat Conservation Trust (BCT UK). Narrow band, heterodyne detectors are used so volunteers who conduct the survey are trained in the identification of Daubenton's bat prior to field work. Surveyors count the number 'bat passes' of this bat species for 4 minutes at each of the ten fixed points on linear waterways. The onset of this scheme was a very significant development in bat monitoring here, since it represented the first large-scale recruitment of members of the Irish public to bat conservation-related work.

Summary of the All-Ireland Daubenton's Bat Waterways Survey 2021

Since 2006, a total of 193 training courses have been organized and these have provided training for over 3,000 people. Due to COVID-19 no in person training courses were organised in 2020 and 2021. BCIreland produced new online training videos in 2020 and these training course videos were made available on the BCIreland YouTube channel. The online video resources were coupled with online Zoom sessions for new survey teams to provide hybrid-type training.

Additional online training in relation to using bat detectors was also prepared to assist volunteers new to bat surveying. In 2021 online training (5x Zoom sessions) was attended by 63 people, 32 of which successfully completed surveys. In 2021, 60 bat detectors were loaned to volunteer surveyors (33% of participating surveyors in 2021). In 2021 227 waterway sites were surveyed by 181 teams counting 15,884 'Sure' Daubenton's bat passes. The population trend indicates that Daubenton's bat population is stable and that the smoothed trend indicates a total increase of 0.52%, which represents a yearly increase of 0.04% (baseline year is 2007).

Brown Long-eared Bat Roost Monitoring Scheme

More recently, in 2007, the Brown Long-eared Bat Roost Monitoring Scheme was piloted and established. This project concentrates on counts of brown long-eared bats at their roosts and is conducted by individuals with a greater level of experience in bat identification than is necessary for the waterway surveys or car-based surveys.

CONSERVATION

The roost survey protocol involves at least two counts per annum (mid-May to August) using three potential survey methods depending on the structure, access and location of bats within, and emerging from, the roost.

Summary of Brown Long-eared Roost Monitoring 2021

In 2021, 41 volunteers surveyed 43 brown long-eared roosts, compiling data through 116 surveys. Volunteers included members of the Galway, Wicklow, Dublin, Waterford, Clare, Cork, Kildare, Midlands bat groups, BCireland members, NPWS staff, ecologists as well as three roost owners. In total 1,586 brown long-eared bat individuals were counted.

The population trend indicates that the brown long-eared bat population is stable and the smoothed index using the model with covariates is currently 6.37% above the 2009 base year value which is equivalent to an average 0.52% annual increase. Bat Conservation Ireland collaborated with the BatLab, University College Dublin on a project 'Bats and Ecosystem Services'. This is being carried out by PhD student Gwenaëlle Hurpy, with funding from the Irish Research Council and NPWS and 13 of brown long-eared bat roosts are included in the study.



Thermal imagery scope set-up with tripod and full spectrum bat detector, being used by Tina Aughney in the BLE Monitoring.

CONSERVATION

Lesser Horseshoe Bat Monitoring Programme

In 2013 Bat Conservation Ireland won a contract with NPWS to manage and administer the Lesser Horseshoe Bat Monitoring database (managed by Dr. Niamh Roche). This involves liaising with local National Parks and Wildlife Service (NPWS) and Vincent Wildlife Trust (VWT) staff who conduct counts at lesser horseshoe bat sites in the west of Ireland in summer and in winter. Bat Conservation Ireland gathers the data, ensures it is entered into the database and carries out trend and other analysis on it.

Summary of Lesser Horseshoe Bat Monitoring 2021

NPWS and VWT regional staff forwarded count data from their sites/regions. In winter 2021, constraints on surveying due to Covid 19 meant that counts could not be carried out unless surveyors could keep >1m distant from the hibernating bats. At that time Covid levels were high in the community, vaccinations had not been rolled out widely, and there was concern that humans could pass the virus on to hibernating bats.

Forty-four lesser horseshoe bat sites were counted in winter 2021 (compared with the usual 90-100), those sites where surveyors could keep sufficiently distant from the bats. One hundred and thirty-four sites were counted in summer 2021. A little over 5,500 bats were counted in winter 2021 and just over 11,300 lesser horseshoe bats were recorded that summer. From 2012 onwards there has been excellent consistency in counts at lesser horseshoe sites which increases the robustness of the monitoring dataset. Trends for this species now show very similar population increases from both winter and summer datasets - at +3% per annum in winter and +2.98% in summer since 2002 (i.e. the past twenty years). Investigations into the use of covariates in the lesser horseshoe bat trend models showed that more accurate trends for winter are produced when day number (grouped) is included as a covariate in the model. Summer trends modelled with day number and internal counts (as opposed to emergence counts) also result in more accurate trends with narrow confidence intervals.

CONSERVATION

Woodland Pilot Monitoring Scheme

There is currently no standardized monitoring scheme in Ireland to track trends in whiskered bats (*Myotis mystacinus*) or Natterer's bats (*M. nattereri*).

A number of studies have been undertaken to determine the feasibility of different approaches and in collaboration with Bat Conservation Trust, UK, a new woodland survey was piloted in 2021. The purpose of this pilot was to determine whether AudioMoths are a suitable tool to monitor Irish woodland bat species.

Eleven woodlands were surveyed using AMs in 2021, nine of which were previously surveyed in the 2016/2017 Woodland Survey. A total of 49 nights of surveying were completed by eight survey teams ranging from 2 to 5 survey nights per woodland. The two new woodlands are Deerpark Woodland, Co. Cavan and Glengarriff Nature Reserve, Co. Cork.

Preliminary analysis was completed by BC Ireland but final results will be provided by Bat Conservation Trust and at which point, the future of this pilot will be determined.



Natterer's bat hibernating © Paul van Hoof



Whiskered bat hibernating © Paul van Hoof

COLLABORATION

Working with Other Groups

Bat Conservation Ireland has long-standing working relationships and collaborations with key groups working across the environmental sector.

Irish Environmental Pillar

Bat Conservation Ireland has been a long-standing member of the Irish Environmental Network (IEN) and has dedicated representative on the Environmental Pillar. Niamh Roche took up the mantle as Bat Conservation Ireland's representative on the Environmental Pillar.

In 2021, the following work was carried out in this capacity:

Meetings Attended:

- Environmental Pillar Meetings x 2
- IEN Strategic Planning Meeting x 1
- NPWS/EC Bilateral Pre-meeting x 1
- NPWS/EC Bilateral x 1
- IEN Pre-budget submission x 1
- IEN-EU Commission on Legal Enforcement x 1
- IEN AGM

Additionally, the following Policy Submissions were drafted:

- Office of Public Works Biodiversity Action Strategy Consultation
- Dun Laoghaire Rathdown Trees and Urban Forestry Strategy Consultation
- Energy Efficiency Traditional Buildings Consultation



**Irish
Environmental
Network**

COLLABORATION

Bat Life Europe



Bat Conservation Ireland is also a member of Bat Life Europe, an international non-governmental conservation organisation, built from a partnership of national bat conservation organisations that are committed to promoting the conservation of all bat species and their habitats throughout Europe. Bat Conservation Ireland has a nominated Trustee to represent Irish interests in this capacity. Brian Keeley took on the role of Bat Conservation Ireland's representative in 2021. Brian has attended virtual meetings as Bat Conservation Ireland's rep in 2021.

Additional Collaborations in 2021:

- We provided lesser horseshoe bat data to the Vincent Wildlife Trust (with NPWS permission) and so they could examine trends in lesser horseshoe bats in non-VWT sites compared with trends in VWT sites. Steve Langton, Statistical Consultant also liaised with them on our behalf to discuss the methods Bat Conservation Ireland use for trend analysis.
- Data from the All Ireland Daubenton's bat Waterways survey for 2021 was sent to Bat Conservation Trust in the UK.
- Discussions on the Woodland Pilot trial continued with Bat Conservation Trust on the best methodologies to use in carrying out the pilot scheme
- Continuing on from her work with Teagasc in 2020, Tina Aughney continued discussions with Teagasc on hedgerow management for bats.



Tina Aughney explaining the importance of hedgerows

COLLABORATION

We have long-term collaborations with the following organisations:

- An Taisce
- Bat Conservation Trust UK
- CEDaR, NI
- Environmental Pillar, IEN
- EUROBATS
- The Heritage Council
- Local Men's Sheds
- National Biodiversity Data Centre (NBDC)
- National Parks and Wildlife Service (NPWS)
- Northern Ireland Bat Group
- Northern Ireland Environment Agency (NIEA)
- Teagasc
- The Bat Lab, UCD
- Tidy Towns Groups
- Vincent Wildlife Trust



RESEARCH

Nathusius Pipistrelle Research Group

Nathusius' pipistrelle Working Group received funding from NPWS Grants for Small Recording Projects in 2021. 10 no. static ultrasound detectors (AudioMoths) were deployed in late summer-autumn in 2021 along the south Wexford coast to record bat echolocation calls so that the presence of this particular species at particular times could be noted. The project team liaised with Mr. Adrian Bicker (Dorset Bat Group) to capitalize on his experience of using the same technique to monitor migratory 'waves' of Nathusius's Pipistrelle bats along the English Channel. The monitoring periods commenced on 26 August 2021 and concluded on 29 October 2021. The overall objective of this project was to record Nathusius's pipistrelle bats at coastal locations using a cost-effective network of static detectors - Audiomoths.

The preliminary analysis of results has included the consideration of 52,893 bat calls collected over 65 nights at ten locations in south Co. Wexford. The data recorded at least four species of bats - common, soprano and Nathusius's pipistrelle bats and Leisler's bats as well as several unidentified Myotis species of bats. The results have suggested that in one location, Nathusius's pipistrelle bats were more frequently recorded in a concentrated period within the survey period. Whilst this could be caused by the passage of migratory bats from north east Europe, this could also be due to a small number of resident bats feeding in this particular location. However this would appear unlikely that this pattern would not be repeated elsewhere or at another time in the survey period. The location of the potential 'wave' of migratory Nathusius's pipistrelle bats was at Lady's Island, Co. Wexford.

The group also received a 2nd grant, under the NPWS Grants for Small Recording Projects, to purchase a bat lure to future ringing programmes.



Photograph of Nathusius's Pipistrelle (under licence held by T. Aughney)

Research Collaboration with UCD

Bat Conservation Ireland has been working in collaboration with Prof. Emma Teeling at the Bat Lab in UCD since 2019, to develop the framework for an Ecosystems Services Research project.

The overall aim is to determine the role that bats play in Ecosystems Services. In other words, what insects do bats consume and how does that help maintain a healthy and diverse environment as well as provide a service for food production, for example as an alternative to controlling pests using pesticides?

A project to examine this topic was awarded funding (2/3 funding) by the Community Foundation for Ireland with project partners the National Biodiversity Data Centre and University College Dublin in late 2020. There were two planned stages to the project in 2021 – one to develop a field guide to Ireland’s bats and the second to set up a website and recruit volunteers to send samples of bat droppings to UCD using a specific protocol and sampling kit.

The first draft of the publication ‘An Identification Guide to Ireland’s Bats’ was completed by the end of July. The final publication went to press and was published in early December 2021. A copy was forwarded to all of our Bats and Bugs volunteers who had contributed bat dropping samples (see below) and additional copies are now for sale on the batconservationireland.org/shop and biodiversityireland.ie/shop.

For the citizen science element of the project, layout of a new website www.batsandbugs.ie was planned March 2021. An RFT went out in April. The tender was awarded by Bat Conservation Ireland to Made in Trenbania in early May. Development began straightaway and website launched (www.batsandbugs.ie) with a Zoom event on July 28th. A leaflet for sampling kits was designed and printed by July 28th. Other materials for kits were gathered by early August.

Considerable media attention was garnered following a joint press release between Bat Conservation Ireland and UCD with a piece in the Irish Independent, a Radio 1 interview

Research Collaboration with UCD

with Dr. Niamh Roche and Prof. Emma Teeling on *Today with Claire Byrne* on 3rd August and KLCR on 4th August. Additionally we ran a Facebook ad for four days.

By late August 2021, almost 200 sample kits had been distributed to 114 volunteers and approximately 50 samples have now been returned to UCD. UCD is currently seeking funding and preparing the methodology for analysing these samples. We have been granted an extension for the remaining amount on the Community Foundation for Ireland grant, so that we can continue sample collection through the 2022 summer season.



Volunteer Bat Surveyors



Home Page of Bats and Bugs Website

RESEARCH

COST Action Network: Climbats

Climbats is an EU Action Network funded by COST (European Cooperation in Science and Technology) which aims to bring together bat researchers, academics, NGOs and others to examine how climate change affects bat distribution in Europe and how this is likely to impact on the ecosystem services that they provide. Climbats is made up of 3 different working groups, with each group having a main objective as follows:



1. Define, predict and quantify the effects of climate change on bats across Europe (Working Group 1);
2. Establish strategies to develop a network to monitor and predict changes in bat distribution and inform future management and policy (Working Group 2);
3. Evaluate the effects of climate change on insect consumption provided by bats in farmland (Working Group 3).

Bat Conservation is represented on this network by Niamh Roche who joined the Management Committee in 2020. Niamh also continues to represent Bat Conservation Ireland on Working Group 2 on Bat Monitoring, having a wealth of experience in running 2 All-Ireland bat monitoring programmes over 18 and 8 years respectively. As part of the action, Bat Conservation Ireland has already contributed over 40,000 Irish bat records and these data, along with thousands of other bat records from across Europe, will enable modelling of bat occurrence and climate.

In 2021, Niamh attended 1 online meeting of Working Group 2.

RESEARCH

Research Papers Published

Bat Conservation Ireland's two Project Managers Niamh Roche and Tina Aughney contributed to one research paper in 2021, as follows:

Paper published December 2021

Journal: Climate Change Ecology

Title: *'Testing consistency of modelled predictions of the impact of climate change on bats'*

Authors: Natasha McGowan, Niamh Roche, Tina Aughney, Jason Flanagan, Paul Nolan, Ferdia Marnell, Neil Reid



FUTURE PLANS

Bat Conservation Ireland's plans for 2022 and beyond are as follows:

Organisational Structure

- In 2021, Bat Conservation Ireland developed a new Strategic Plan for the years 2022-2025. Bat Conservation Ireland is committed to start realising the work of this plan in 2022;
- In 2021, Bat Conservation Ireland formally reported to the Charities Regulator on our compliance the Governance Code. In 2022, we will continue working on ensuring compliance with the code and our commitment to developing and implementing good governance;
- Following on from the affiliation with Bat Conservation Ireland in 2020, the Bat Groups met compliance by providing reports on their activities in 2021. We will continue to liaise with the bat groups, provide administrative support and advice necessary to help them meet compliance requirements.

Conservation Work

- See through our current tender for the Irish Bat Monitoring Programme (2018-2022) and apply for the next tender, anticipated to be published in 2022;
- As there was an underspend on the grant we received from the Community Foundation for Ireland for the Ecosystems Services Project in 2021, we requested an extension of this project to continue throughout 2022;
- Apply to the Heritage Council's Capacity Building Grant to carry out educational work on protecting bats in heritage structures;
- It is the intention that Bat Conservation Ireland will use reserve monies to reintroduce our small grants scheme to support the work of small, volunteer and community-led conservation work around the country in 2022;

Education

- Recruit a part-time Education Officer to support and develop our work in providing educational events and resources to the general public;

FUTURE PLANS

- Bat Conservation Ireland will continue its work of educating the general public about the importance of bats for a healthy environment in the following ways:
 - Continue to deal with queries submitted through our website;
 - By maintaining and updating our 2 websites - www.batconservationireland.org and www.learnaboutbats.org;
 - Carrying out an interim upgrade of our main website www.batconservationireland.org to ensure it is user friendly and provides updated and relevant information;
 - Conduct bat walks and talks, centrally through Bat Conservation Ireland staff and through the county bat groups around the country;
 - Carry out training (either in person or online) for members, the general public, ecologists, NPWS staff, students, bat rehabbers and anyone with an interest in learning more about bats, or in upskilling people in specific areas;
 - Rerun our training course, 'An Introduction to the World of Bats' to train/upskill those working or volunteering in the area of bat conservation/bat surveys;
 - Carry out educational activities during Biodiversity Week and Heritage Week for the general public;
 - Maintain and update our social media platforms, to help engage and educate the general public about bats;

Community Engagement

- Provide support for bat groups for their work in running bat walks and talks and educational events and conservation projects in their local communities;
- Engage with Tidy Towns on projects such as our bat box scheme, to ensure there is wide coverage of these conservation projects;

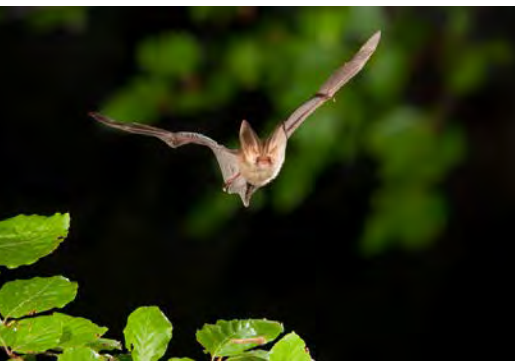
Collaboration

- Continue engaging with the Environmental Pillar, to ensure that bat issues are well represented at national level;
- Continue to work with Bat Life Europe through our representative appointed, to ensure that issues around Irish bats are well represented at European Level;
- Continue working with national environmental organisations around the country to ensure that bat issues receive good exposure;

FUTURE PLANS

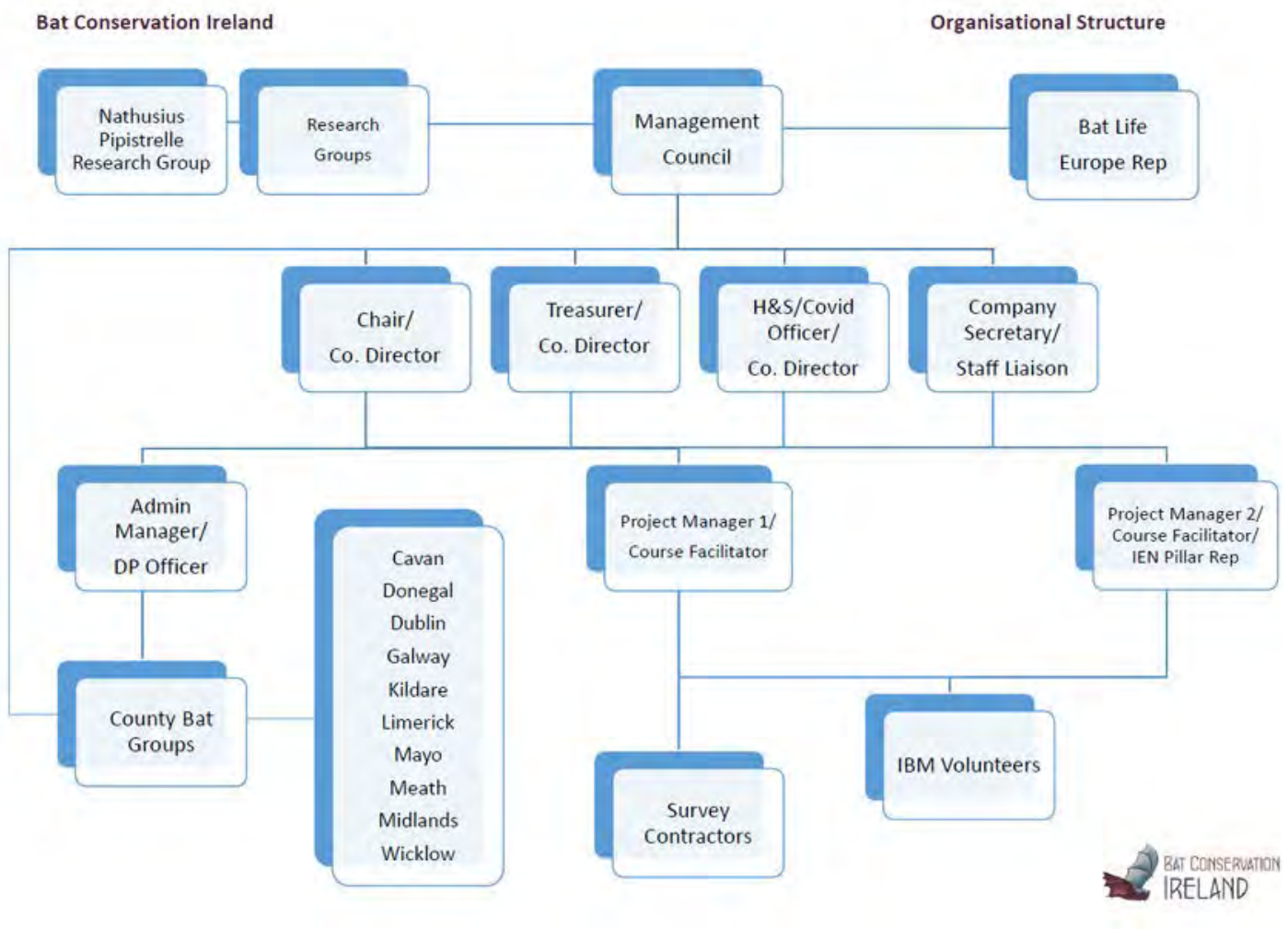
Data Research

- Ensure that data is uploaded to our database housing bat records to ensure it is accurate and up to date;
- Liaise with NBDC around housing of bat records and feed data into their database repositories;
- Continue participating in research collaborations such as COST Action Network: Climbats and UCD on the Ecosystems Services Project;
- Continue with research and contributing to research publications.



ORGANISATIONAL STRUCTURE

Bat Conservation Ireland is a non-governmental organisation with charitable status. We are a membership organisation, with a governing Council (currently comprised of 9 Council members) and a small, paid part-time staff. We have 10 bat groups at various stages of development, around the country. Our current organisational structure is laid out in the matrix below.



STAFF

Bat Conservation Ireland currently has 3 paid part-time staff members.

Tina Aughney

Tina has managed the All-Ireland Daubenton's Waterways Survey since 2006 and the Brown Long-eared Bat Monitoring Scheme since 2007. She works for Bat Conservation Ireland on a part time basis.



Under Tina's management, the All-Ireland Daubenton's Waterways Survey has developed into a monitoring scheme with a large and committed volunteer base. By liaising on a county level with local authorities and community groups, promoting the project with local press and radio stations, and presenting training courses throughout the island, Tina has trained in excess of 2,000 volunteers since 2006. This scheme continues to thrive with over 400 waterway sites surveyed across the island providing extensive information on the distribution of this species.

Tina has an honours degree in Environmental Science from NUI Galway and completed a Ph.D. thesis on the impact of the Rural Environmental Protection Scheme (REPS) on lowland farm habitats in the west of Ireland. For her extensive work in relation to bats and facilitating members of the public to become actively involved in the conservation of Irish bat species, Tina was awarded Distinguished Recorder of the Year 2011 by the National Biodiversity Data Centre.

She is an active active collector of biodiversity data that is regularly submitted to National Biodiversity Data Centre (NBDC).

STAFF

Dawn Quinn

Dawn joined Bat Conversation Ireland in 2019 as its part-time Administration Manager. She has over 20 years' administrative and financial experience, working in both the private and NGO sectors.



Dawn has worked in variety of different roles including managing and implementing administrative systems, volunteer management, project and network coordination and event management in the human rights, social justice and international development sectors.

She holds an honours degree in Audio Visual Communications from the Institute of Technology Tallaght and a Master's Degree in Comparative Ethnic Conflict from Queen's University Belfast

STAFF

Niamh Roche

Niamh has managed the Car-based Bat Monitoring Scheme since 2004 and the Lesser Horseshoe Bat Roost Monitoring Scheme since 2012. She works for Bat Conservation Ireland on a part time basis.



Under her direction, the car-based scheme has grown from a pilot project covering fewer than 10 survey squares, to an island-wide survey with a committed surveyor base. She has also presented Bat Conservation Ireland's work at national and international conferences. She was lead author of the book *Irish Bats in the 21st Century*. Niamh has also been the main organiser of several national bat conferences. More recently Niamh has been involved in analysing long-term bat trend datasets collected by Bat Conservation Ireland monitoring schemes to see if predictions can be made about how they are likely to change with future climate change.

Niamh represents Bat Conservation Ireland on the Management Committee of the EU Cost Network Project on Bats and Climate Change. Niamh also represents Bat Conservation Ireland on the Environmental Pillar.

She has a degree in Environmental Biology from UCD and a Ph.D. from the University of Warwick, which examined bat activity in broadleaved woodlands

VOLUNTEERS

In any given year, Bat Conservation Ireland could have 600 volunteers helping us achieve our goal of 'the advancement of education and the promotion of the conservation and study of bats on the island of Ireland and elsewhere in the world'.

Our volunteers are critical to our work and we could not achieve our goals without them.

Volunteers work across key areas as follows:

- Education - conducting bat walks and talks around the country
- Bat Monitoring - carrying out bat surveys for the Car-based Monitoring Scheme, the All Ireland Daubenton's Waterways Survey and the Brown Long-Eared Bat Roost Monitoring
- Community Engagement - Liaising with other Community groups such as Tidy Towns and Men's Shed for our Bat Box scheme



A variety of photos of volunteers and members attending training and educational events taken from previous years

MEMBERSHIP

Bat Conservation Ireland is a membership organisation that greatly values its members and volunteers, both of whom are vital to the work of conserving Ireland's bat populations. Many of our members participate in activities such as our national monitoring programmes, which are carried out annually.

We would like to sincerely thank all of our members and volunteers for their kind and generous support in 2021.

Volunteers with Bat Conservation Ireland play a key role in supporting the work of the bat monitoring projects carried out annually. In 2021, there were 248 paid members of Bat Conservation Ireland. As we are very active around the country in any given year, carrying out bat walks and talks, participating in events and educational activities, this helps with encouraging new members to join. Unfortunately, much of this work was curtailed again in 2021 due to the health restrictions in place, however we did see an increase in membership numbers throughout the year.

In order to ensure that membership fees are processed in an efficient manner and decrease staff dealing with cash and cheque payments, we have an online recurring membership payments system which allows annual membership fees to be automatically renewed, thereby decreasing the amount of administrative time spent on following up on payments.

**Bat Conservation Ireland
would like to thank all of our
members and volunteers for
their invaluable support.**

Financial Summary

Income

Irish Bat Monitoring Programme (NPWS)	88,639
Woodland Pilot Monitoring Scheme	12,799
Core Funding (IEN - Dept. of the Environment, Climate & Communications)	25,440
IEN - Biodiversity Week	1,600
Membership and Donations	7,880
Sales of Merchandise and Training Courses	18,239
Heritage Council	10,292
Bat Group Projects	2,148
Other Funding (IEN)	3,044
Project Money Deferred	(40,380)
UCD-NPWS Research Project	1,600
Community Foundation for Ireland Project	46,446

177,747

Expenditure

Irish Bat Monitoring Programme	17,375
Once-off Projects	10,717
Woodland Pilot Monitoring Scheme	5,269
Ecosystems Services Project	18,113
Biodiversity Week 2021	884
BCIreland Grants	146

Core Costs

Wages and Salaries	62,926
Social Welfare Costs	6,298
Staff & Management Training	1,250
Management Expenses	732
Insurance	5,698
Printing, Postage & Stationery	1,556
Computer Costs	8,025
Motor Expenses	13
Professional Consultancy	1,919
Bank Charges	621
Bad Debts	700
General Expenses	1,252
Subscriptions	365
Auditor's Remuneration	4,733
Depreciation	608

149,200

Net Surplus*

28,547

*Net Surplus funds will form part of our reserve funds, intended to be used to fund BCIreland Small Grants Scheme and longer-term conservation projects
2021 Annual Report and Financial Statements were properly prepared in accordance with FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland"

Our full Financial Statements and audited accounts are available on our website

IN 2021

National Parks and Wildlife Service, Department of Housing, Local Government and Heritage

Purpose: Irish Bat Monitoring Programme

Contract Term: 4 years (2018-2022)

Total Value of Contract: €323,000

Community Foundation for Ireland - Environment and Nature Fund

Purpose: Ecosystems Services Project

Grant Term: 2021, carried over into 2022

Total Value of Funding: €46,446

Irish Environmental Network - IEN, on behalf of Department of Communications, Climate Action and Environment

Purpose: Core Funding

Grant Term: 2021-2022

Total Value of Funding: €25,440

Northern Ireland Environmental Agency (Natural Environmental Division) Bat Monitoring in Northern Ireland (Irish Bat Monitoring Programme)

Purpose: National Bat Distribution Project

Grant Term: 2020-2021

Total Value of Funding: €13,639

National Parks and Wildlife Service, Department of Housing, Local Government and Heritage

Purpose: Woodland Monitoring Scheme - Pilot

Contract Term: 2021

Total Value of Contract: €12,799

IN 2021

The Heritage Council , Community Grants Scheme

Purpose: Neighbourhood Bats, with a little help from
Neighbourhood Citizen Scientists Project

Grant Term: 2021

Total Value of Funding: €10,292

National Parks and Wildlife Service, Department of Housing, Local Government and Heritage

Purpose: To upgrade the existing bat records database

Grant Term: 2020, carried over into 2021

Total Value of Funding: €4,920



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage



Northern Ireland
Environment
Agency



Department of
Agriculture, Environment
and Rural Affairs
www.daera-ni.gov.uk

IEN



Irish
Environmental
Network

An Chomhairle Oidhreachta
The Heritage Council



**Bat Conservation
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thank our partners and
funders for their
financial assistance**

Bat Conservation Ireland
Registered Address:
Carmichael Centre
4-7 North Brunswick Street
Dublin 7.

E-mail: admin@batconservationireland.org
www.batconservationireland.org



Registered Number: 494343
Charity Number: 13016
Charity Registration Number: 20039417

