

Issue 139

Spring 2026

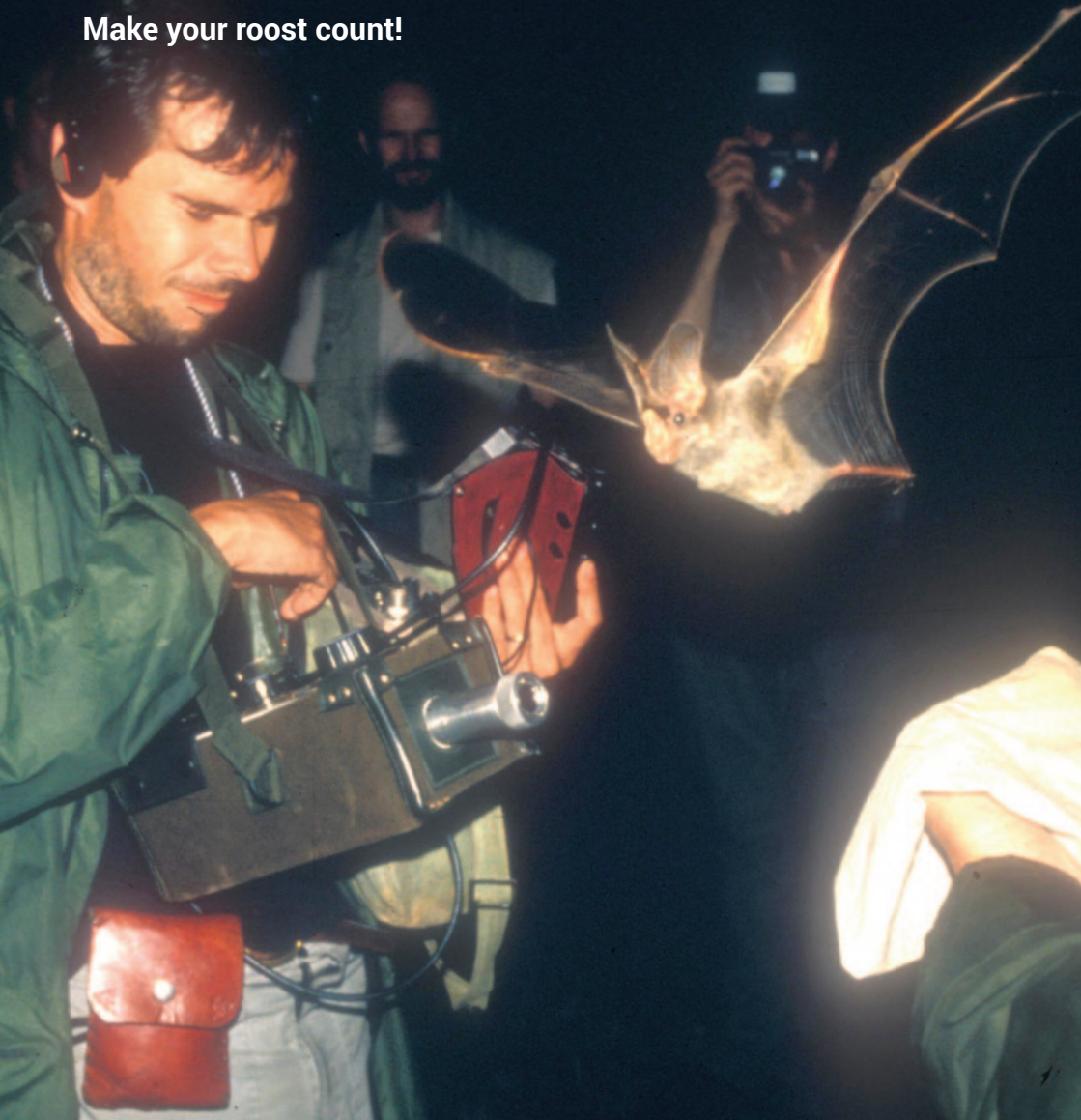
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Bat News

What do insect declines mean for bats?

Tips from BCT's Nocturnal Garden at RHS Chelsea Flower Show

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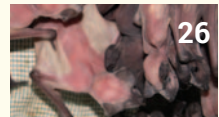


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Cover Gareth Jones recording a Ghost bat in Australia in 1989 (prior to the introduction of enhanced hygiene protocols for handling bats recommending gloves and mask use) © Shirley Thompson

Correction - winter 2025 issue: our sincerest apologies for including the wrong credits on the photos of the feature on page 7. Top and bottom photos © Lauren Gibson; middle photo © Adam Raitr

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Welcome

From Kit Stoner, Chief Executive



I'm going to start with exciting news! BCT will be showcasing its first-ever garden at the RHS Chelsea Flower Show this year – the Nocturnal Garden – showing how anyone can create a beautiful, wildlife-friendly garden that supports bats and other nocturnal species. You can read more about how to incorporate bat friendly features into your own garden, balcony or green space on pages 21-24. The RHS garden has been designed by Melanie Hick, and you can read more about her on pages 28-29.

One of the important features of the garden is a diversity of plants to support our nocturnal insect populations. All our UK bat species eat insects, so this is essential for them to thrive. Given this fact, what do insect declines mean for bats? Hannah Romanowski has explored the relationship between bats and insects for her PhD. The relationship is complex and not always consistent, but it is there. She found that prey availability was often strongly linked to pipistrelle activity, and over recent decades (1998-2023), years with more insects had more pipistrelle activity recorded through National Bat Monitoring Programme (NBMP) field surveys.

Speaking of the NBMP, one of the surveys that helps us deliver bat population trends is the Roost Count (pages 18-19). Unfortunately, we have noticed a decline in roosts being monitored each year. So, if you know of a roost that is not currently included in the NBMP Roost Count and you would like to help us by counting the bats out this summer, we would love to hear from you!

One roost that is significantly larger than average is at Woodchester Mansion (see pages 16-17)! The Woodchester Bat Project is now in its 70th year, courtesy of Roger Ransome, who began collecting data on the bats when he was just 16 years old. Genetic data has allowed researchers to construct 'social networks' to unpick the drivers of hibernation behaviour in horseshoe bats. Surprisingly, close relatives were rarely found together; instead, bats of similar age often shared hibernacula. Research has also shown that bats born in the same year form connections that persist into adulthood, often being found together in tight clusters.

Another person integral to research at Woodchester Mansion is Gareth Jones who has worked in bat conservation for 40 years. His work over the years has been wide-ranging, focusing on ecology, behaviour, bat biology, bioacoustics and, more recently, conservation biology and molecular ecology. He is retiring soon, but you can read more about his work on pages 12-15.

Elsewhere in the magazine, you can find out more about Tutela Pipistrelli, an NGO in Italy that was formed 13 years ago (see pages 26-27). And closer to home, see what UK bat groups have been up to on pages 6-9.

Kit Stoner Chief Executive

Elliot Bastos, our Wales Woodland Wonders Project Officer, has been busy making bat boxes with some wonderful people at a community garden in Blaenau Ffestiniog, they will provide a home for bats in the local area.



SPOTLIGHT on bat groups

Bat groups, made up of many dedicated volunteers, are the mainstay of bat conservation in the UK, undertaking vital front-line conservation work.

Counting lesser horseshoe bats in the Gower Peninsula

By Aaron Davies, Glamorgan Bat Group

2025 found Glamorgan Bat Group, who cover the area around Swansea and Neath Port Talbot in South Wales, undertaking our annual lesser horseshoe bat counts across the Gower Peninsula. This includes summer counts of the known maternity roosts and hibernation checks across multiple hibernation sites.

The summer counts have been ongoing pretty consistently since the 1990s and are undertaken by volunteers, with data being collected as part of the National Bat Monitoring Programme (NBMP). A total of 17 maternity roosts were counted during the 2025 summer surveys. Maximum counts across all roosts from these summer surveys recorded 1,441 lesser horseshoe bats. This compares to a count of 1,388 in 2024; a 3.8% increase.

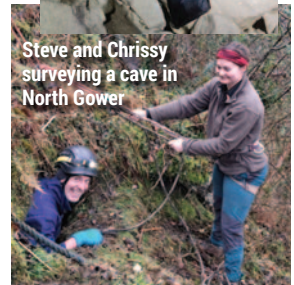
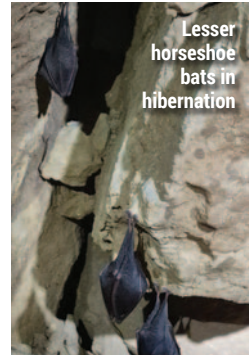
The Gower Peninsula's limestone geology provides plenty of natural hibernation sites, with a high number of caves monitored each winter. There are also some human-made features, such as a disused tunnel and a French drain, surrounding a large old manor estate.

Winter counts have also been ongoing since the 1990s, with data contributing to the NBMP hibernation surveys. During the first winter count of the 2025/2026 season in December 2025, lesser horseshoe bats, greater horseshoe bats, brown long-eared bats and common pipistrelles were recorded.

Looking at lesser horseshoe bats specifically, from a total of 20 different hibernation sites, 145 bats were recorded. This is considerably lower than the maximum count of lesser horseshoe bats encountered during the winter previously, which was 240 bats in 2014. A total count of 195 lesser horseshoe bats were recorded last winter. Hopefully, the February count (which hasn't been done yet at time of writing) will bring better numbers!

Another interesting point which can be seen from this data and from previous years data, is that the summer counts find 3.5 to 11.5 times higher numbers of lesser horseshoe bats than the winter counts, depending on the year. So, this is the next mission – find where all these missing lesser horseshoe bats go to hibernate!

A big thank you to all the volunteers that join us for both the summer and winter counts. The help is invaluable and is very much appreciated.



Photos © Aaron Davies

Post Release Survival Project

By Claire Andrews (CA Ecology), in collaboration with Hampshire Bat Group and Berkshire Bat Group

The Post Release Survival (PRS) Project is a long-term bat conservation initiative, led by Claire Andrews of CA Ecology, working in collaboration with the Hampshire and Berkshire bat groups. Launched in 2023, the project aims to collect robust data on the long-term survival of rehabilitated, hand-reared and juvenile bats. This five-year study aims to better understand post-release outcomes to improve rehabilitation practice.

The project addresses a long-standing gap in bat rehabilitation evidence. To date, three published studies have demonstrated that released bats can, and do, survive, with pre-release conditioning in a flight pen shown to be critical. Radio tracking from these studies indicated that foraging and movement patterns were typical of wild bats, with more than half of the released individuals roosting in buildings supporting local colonies. However, these studies were limited by small sample sizes and short timeframes of just one or two seasons.

The PRS project aims to build on these findings by monitoring a larger cohort of bats over multiple years. Results will be fed back to bat carers, addressing practical questions such as optimal time spent in a flight cage, latest viable release dates and whether some pups should be overwintered before release. Answers will depend on the number and timing of long-term recaptures.

Each summer, bats undergo pre-release conditioning in a flight cage before being ringed and released. Recapture methods include mist-netting, harp trapping, monitoring release boxes with camera traps and webcams and inspecting local bat boxes.

To date, 78 bats have been ringed and soft-released, with a further 50 ringed and returned to original roosts. In 2023, five trapping sessions captured seven bats of three species, including three recaptures. In 2024, we redoubled our efforts with 11 sessions capturing 88 bats of six species, but frustratingly, yielded no recaptures. In 2025, we turned the corner with ten sessions capturing 83 bats of eight species, and happily, eight recaptures, some multiple times.

Recaptured species include common and soprano pipistrelles, brown long-eared bats and Natterer's bats, ranging from eight to 345 days post-release.

Camera trapping has proven to be an unexpectedly valuable tool and further improvements are expected with a new REFLEX camera. To date, all bats recovered have been released pre-hibernation and were in the flight cage between seven and 37 days pre-release. The more bats we capture, the more we are able to look for patterns and difference in early care.



Unlocking bat secrets: DNA analysis of bat droppings in West Yorkshire

By *Colin Townsley, West Yorkshire Bat Group*

In October 2025, West Yorkshire Bat Group (WYBG) hosted a highly successful mini conference at Cleckheaton Library. The drop-in event, titled ‘Snoop at Bat Poop’, brought together over 50 delegates and featured three international academic speakers. The primary aim was to showcase WYBG’s ground-breaking ‘Proof of Concept’ utilising Shotgun Metagenomic DNA analysis—a cutting-edge, non-invasive method that examines single bat droppings to monitor and study local bats in West Yorkshire.

This innovative approach allows WYBG to gather critical insights into bat dietary ecology, health and disease risks without disturbing the animals. Detailed information on bat species identity, consumed prey insects and bacteria, fungi and viruses within the gut microbiome is provided from a single dropping, quickly and reliably.

The analysis of bat droppings, collected from two roost sites and two bat rescue centres in West Yorkshire, revealed a complex and diverse range of gut contents. These results highlight the intricate communities present in bat guts from both wild bat populations and bats in temporary captivity.

Interestingly, bats in temporary care displayed an acute reduction in gut bacterial diversity. Though the shift was subtle overall, droppings from care bats were often dominated by just one or two bacterial families.

The DNA analysis method proved highly effective for identifying bat species, successfully assigning 18 out of 26 samples to the species level. The study confirmed the presence of five distinct bat species in the exploratory West Yorkshire Study: Daubenton’s bat, noctule, Leisler’s bat, common pipistrelle and soprano pipistrelle.

Examination of droppings from wild species, particularly Daubenton’s bat and noctule, revealed insect DNA which confirmed natural foraging activity at woodland and aquatic sampling sites.

WYBG intends to further develop its DNA analysis methodology to enhance dietary optimisation for bats undergoing rehabilitation. We also aim to incorporate GPS tracking with environmental DNA analysis (a technique that detects the genetic material shed by organisms into their environment) to systematically monitor the welfare of rehabilitated bats following their release.

Bat droppings offer a wealth of biological information. Through the application of advanced DNA science, the West Yorkshire Bat Group is helping to protect and understand the region’s bat populations.



Alderfly from the aquatic sampling site – Alderfly DNA is typically found in the gut microbiome of Daubenton’s bats which forage at aquatic sites

© Colin Townsley



© Colin Townsley

Radio tracking study of greater horseshoe bats

By *Colleen Hope, Hampshire Bat Group*

There are currently no known maternity roosts for the greater horseshoe bat (GHS) in Hampshire and fewer than 15 known day/night roosts, most of which support one or two bats. The single exception is one roost in the Avon Valley. This roost has been monitored intermittently since 1987 and has been primarily a hibernation and transitional roost. The spring population of GHS at this site has increased during the last ten years from peak counts of 12 bats to 39.



Greater horseshoe bat fitted with tag, prior to release

© Nik Knight

In spring 2025, New Forest District Council obtained funding for a radio tracking study of bats from the Avon Valley roost. This was a collaborative project with Ecological Consultancy Services Ltd, Davidson Watts Ecology and Hampshire Bat Group (HBG). The primary aims were to locate new roosts, increase understanding of the areas favoured by the bats and ultimately, to provide baseline data to build on to focus local conservation efforts.

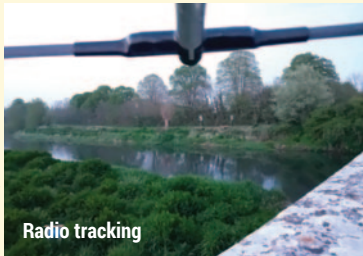
Four female bats and one male bat were fitted with radio transmitters in April and radio tracked for the following 12 nights. All five remained within an 8km range span during the main tracking period. Towards the end of the period, three females moved off to two known maternity roost sites in Dorset – journeys of 14km and 29km within a period of a few hours.

As with previous studies, bats spent much of their time in relatively small areas within their larger home ranges. A home range size of 2,050ha with a range span of 8.12km was determined, with habitat preference shown for woodland, built/gardens and grassland. However, bats used a mosaic of these habitats within the Avon Valley. Bats avoided open water which, as a habitat, was over-represented in the study area (with a number of large lakes from former gravel pits).

Bats used 12 roosts in the Avon Valley during the period. This included a new day roost record and six new records of night roosts. Most bats moved between roosts during the period and some communal night roosting was recorded.

The study has highlighted priority areas which need further investigation. We are also building relationships with land owners with a view to protecting existing roosts and adapting buildings as new roosts. Our ultimate aim would be to provide/enhance a suitable site as a maternity roost and if resources allow, we would like to track bats from north or south of the study site over the next few years.

Radio tracking work was funded by New Forest District Council and undertaken by a team of surveyors from ECS and DWE with additional support from Nik Knight of HBG. Particular thanks to NFDC (Chris Hodsman and Jo Richmond) NFNPA (Ian Barker) and Crispin Sampson.



Radio tracking

© Colleen Hope

To find details of a bat group near you, please check the BCT website: www.bats.org.uk/support-bats/bat-groups or contact: batgroups@bats.org.uk / 020 7820 7193.

What do insect declines mean for bats?

By **Hannah Romanowski**

Insects seem to be disappearing from our everyday lives. Windscreens appear cleaner, summer hedgerows feel quieter, and the familiar signs of abundant bug life are harder to spot. These observations are increasingly shared by the public and scientists alike. The term “insect apocalypse” has even entered mainstream conversation. But humans won’t be the only species noticing and being impacted by these changes.

For many animals, insects aren’t just part of the natural world, they’re a lifeline. Globally, many bat species rely on insects as their primary food source, and in the UK, all bat species are insectivorous. If insects are disappearing, bats may be among those that experience the consequences.

However, are insects really disappearing? This is a difficult question to answer. Research suggests that some groups of insects are declining in abundance, others are increasing, and others show little change. And with over 24,000 insect species in the UK, each with their own position in the ecosystem, they will not show the same patterns of change.

It also depends on what we mean by “decline”. We can measure change in several ways, including abundance (how many individuals there are), distribution (where a species is found), diversity (how many different species occur) or phenology (the timing of key



Microscope image of a family of fly (Diptera), Cecidomyiidae, which is regularly eaten by common and soprano pipistrelles

events like emergence, migration or hibernation). There are also major gaps in the data we have available. Many insect groups are under-recorded or not recorded at all, resulting in patchy long-term monitoring.

Even so, a recent House of Commons inquiry titled ‘Insect declines and UK food security’ concluded that “the consensus among experts is that in the UK insects are in decline.” So, what does this mean for our bats?

At first glance, it seems obvious. Fewer insects should mean bats will struggle. You might expect that bats can’t find enough food to reproduce successfully, or can’t store enough fat for hibernation. Or they may wake up from hibernation to find too little prey after a long fasting period, or become less active overall. All leading to an eventual decline in number.

But it may be more complicated. What if bats can switch prey when one insect group becomes scarce? Or maybe the insects’ bats

rely on most aren’t actually declining? What if other factors, such as climate change or habitat loss, are impacting both bats and insects at the same time - how do we separate the two?

These are the kinds of questions my PhD research set out to explore. To dig into the relationship between insects and bats, I focused on common pipistrelles and soprano pipistrelles.



Microscope set up used to identify insects caught in the Rothamsted Insect Survey suction-trap. Each insect is individually and manually identified and counted using taxonomic keys

My main research questions were:

- Have the insects these bats prefer to eat changed over time?
- Are bats more active when there are more insects available?
- And over multiple decades, does long-term change in insect prey help explain bat population change?



Hannah setting up passive bioacoustics recording devices in the field

Over four years, I carried out extensive fieldwork and data analysis. I deployed passive acoustic monitors across south-east England, collected and identified tens of thousands of insects and gathered bat droppings from volunteers' gardens to investigate their diet.

I also drew on the wealth of long-term monitoring data available in the UK. Many people will be familiar with, or may even have participated in, the National Bat Monitoring Programme (NBMP); a citizen science programme that has monitored change in UK bat populations through volunteer surveys since the 1990s. Less widely known is the Rothamsted Insect Survey (RIS); a world-leading insect monitoring programme that has been running since the 1970s. Together, a gold mine for my research!

So, what did I find? The relationship between bats and insects is complex, nuanced and not always consistent – but it is there.

From my field work, I found that prey availability was often strongly linked to pipistrelle activity. On nights when there were fewer insects, there was less activity for both species, and this was consistent across four sites in England.

Most notably, over recent decades (1998–2023), years with more insects also had more pipistrelle activity recorded through NBMP field surveys. This is one of the first times insect abundance has been linked to bat

population measures over this kind of multi-decade timeframe.

However, the strength of the long-term relationship varied depending on bat species, site and habitat effects and whether other important factors like weather and season, were included in my analysis.

Identifying relationships in ecological data is challenging due to how complex they are, but this work suggests that insects may be a limited resource for bats, and prey availability can influence bat activity and potentially bat population change.

Whilst this might seem concerning, the good news is that we are one step closer to understanding what is important to help our bats recover from historic declines and thrive. By restoring habitats, reducing pesticide use, protecting dark corridors and supporting citizen science, we can help rebuild the foundations of healthy ecosystems. Looking after insects is also about the bats, birds and biodiversity we love.

Acknowledgements: In light of this edition of Bat News also celebrating the career of my supervisor Gareth Jones, I would like to add my personal gratitude for his guidance and support throughout my PhD. I am honoured to be his last of a long lineage of appreciative PhD students.

Gareth Jones retires – a journey through his impressive career

By **Lia Gilmour**, BCT's Research Manager



Gareth Jones has worked in bat conservation for 40 years. His work over the years has been incredibly wide-ranging, focusing on ecology, behaviour, bat biology, bioacoustics and, more recently, conservation biology and molecular ecology. He was also a trustee for BCT between 2005 and 2011 and remains an honorary science advisor for us today.

When I heard Gareth Jones was retiring from the University of Bristol and plans were afoot for a celebration, an idea formed in my mind: what better way to honour his legacy than to write a feature for Bat News? Anyone with an interest in bats will have come across his work, or his impressive global network of collaborators and past PhD students (and indeed their students – his “academic grandchildren”).

If you haven't heard of Gareth or his work, you are in for a treat! Sit back while I take you on a journey through his career and the impact he has had on bat research and conservation.

How Gareth's legacy took flight

Gareth arrived at Bristol in 1985 to work on the aerodynamics of bat flight. There started a career rich in every aspect of bat research that you can imagine!

Over the next 40 years, he supervised no fewer than 60 PhD students, worked with many collaborators and pioneered the use of innovative techniques to study bats. Students under his supervision recorded, analysed and tinkered with ultrasound, studying echolocation and how to identify bats by their calls, as well as developing pioneering bat acoustic classification systems. They also went out into the field, exploring how intricately bat behaviour is linked to habitat and prey.

Through collaborative work, Gareth is known to have pioneered modern bat research methods in the UK and all over the world, leaving a lasting legacy in his wake. Talking to previous students of Gareth's – Danilo Russo, from the University of Naples Federico II, and Hugo Rebelo from the University of Lisbon – has opened my eyes even further to the global impact Gareth has had, and how he kick-started modern bat research in southern Europe in the late 90s/early 2000s. According to Danilo, Gareth was “instrumental in introducing acoustic approaches to studying habitat use, early automated call classification, radiotracking of bats and modelling” to the region.

Along with Danilo and Hugo, a remarkable number of his PhD students, collaborators and postdocs have gone on to become leading academics and conservation scientists across the UK, Europe, North America, Southeast Asia and Australia.

There is no way I can take you through every part of his career, so I have cherry-picked a few key stories to give you a flavour of Gareth's work over the years and some of the people he has inspired along the way.

A tale of two pipistrelles

Did you know that common and soprano pipistrelle were once thought to be one species? It wasn't until the 90's that they were found to be two entirely different species!

The story began when the much-missed and loved BCT colleague, Kate Barlow, was doing her PhD, which Gareth was supervising. During our lectures, Gareth often explained what was needed to officially separate the two species and how the 'hidden' pipistrelle became the soprano pipistrelle.

We were all fascinated to hear of field experiments where his student, Kate, recorded the bats and discovered that some bats had peak echolocation call frequencies of 45kHz and others of 55kHz. This raised Kate's suspicion that they might be listening to two distinctive species. Studies on DNA confirmed the two species were genetically distinct, leading to the new soprano pipistrelle (which echolocates at the higher frequency of 55kHz) being named – and the rest is history!

Another student of Gareth's, Ian Davidson-Watts (now a leading ecological consultant), later radio tracked the two species, showing how different they are in their choice of habitats.



Pipistrelle species in hand left to right Nathusius', soprano and common

A gothic mansion and a unique collaboration

You may have heard of Woodchester Mansion; the Victorian gothic house in Gloucestershire, England, famous for housing a thousand-strong greater horseshoe bat colony. You may not know that Gareth collaborated with Roger Ransome, who has been monitoring bats at Woodchester since the late 60s. This makes Roger's work the longest continuous study of a mammal by a single individual!

Over the years, Gareth and Roger have collaborated on many studies with the greater horseshoe bats as the star of the show! You can read about one of these studies on page 16.

From genes to landscapes, and back again

Since the early days, Gareth's career has been peppered throughout with bat genetics. From exploring the evolution of echolocation, to tracing the migratory behaviour of the Mexican free-tailed bat (aka the tequila bat), to identification of prey species in bat droppings. But no matter what they were studying, students were always encouraged to have conservation and real-world application at the core of their work.

Examples of this work are the pioneering studies using species distribution modelling (SDM), by Hugo Rebelo, Alice Hughes (University of Hongkong) and Orly Razgour (University of Exeter).



Photos © Lia Gilmore

Orierton field course 2017

Gareth and his collaborators also used these models to predict how climate change may impact bats in Europe, Africa and South Asia. Orly's research combined SDMs with population genetic techniques to predict how landscapes could be managed to help the rare and endangered grey long-eared bat – another example of real-world application of this technique. Orly, Gareth and a team including BCT have since shown how exciting new molecular approaches can shine a light on bat population crashes in the past. Historical declines have been confirmed so far in barbastelles and the grey long-eared bat, but watch this space for more work in this area in future!

Applying science to inform bat conservation

How we as humans impact bats has always been an important focus for Gareth. Ambitious experimental field studies undertaken by his students have often provided evidence informing conservation management.

In 2009 came the first evidence of the negative impacts of artificial light on bats via Emma Stone's PhD. Since then, Gareth's lab has contributed to a body of evidence on what lighting up our skies at night does to bats and the insects they eat. Emma (University of Bath) and proceeding students, Andy Wakefield (University of Bristol) and Liz Rowse (Natural Environment Research Council), showed the effects of changing light technology (e.g. the move to LED), colour and dimming regimes.

Gareth, Matt Zeale and other collaborators also explored the use of acoustic deterrence, paving the way of the hugely successful Bats in Churches Project, funded by the National Lottery Heritage Fund. I then tested the same deterrence devices used in churches during my PhD, as a way of deterring bats away from structures such as wind farms, where they may come to harm.

The impacts of human structures and landscapes also featured in the PhDs of Lizzy Tinsley, Jérémy Froidevaux (Université Marie et Louis Pasteur) and Andy Carr (Forest Research Institute, Poland). Lizzy showed the negative impacts of solar farms on bats, and Jérémy and Andy highlighted how key farmland and woodland management practises can improve landscapes for bats. The intricate link between bats and insects was central to these PhDs and also to the work of Gareth's 60th and final student, Hannah Romowski (see page 10).

Gareth's legacy continues

Despite retiring, Gareth remains an Emeritus Professor at the University of Bristol. He will no doubt continue to advise on and contribute to bat research, whilst enjoying more free time to photograph wildlife and spend time with his family.

As to his legacy, the people he trained, his network is so vast and far-reaching that you can't go far in the bat world without meeting someone touched by his brilliance and generosity. I very much expect that will continue to be the case for many years to come.

Thanks to Orly Razgour, Danilo Russo, Hugo Rebello and Jérémy Froidevaux for helping me with Gareth's story.

From colony to chromosome – uncovering secrets of the bats at Woodchester Mansion

By **Luke Romaine** and **Megan Power**

Debra was a female greater horseshoe bat, born on 16 July 2009, in the attic of Woodchester Mansion, Gloucestershire. In her first few weeks, she grew to 56.9mm, slightly above average for her year. She was found twice in the nearby stone mines in Nailsworth during her first winter, and returned a further 14 times over the next decade. Like her mother, she bred for the first time at age two, producing a pup every year for the next 11 years. She was last seen in the winter of 2021/22 – after which she was, sadly, presumed dead.

Like Debra, every bat tells its own story – from its birth, diet, where it roosts, to the mates it chooses and the young it raises. When we multiply these stories over hundreds of individuals and several decades, we create something far more powerful than a collection of anecdotes: a rich dataset capable of revealing the deep patterns shaping a species.

Long-term studies are the crown jewels of science for exactly this reason. The Woodchester Bat Project can claim the title of the longest study of its kind in the world. Now in its 70th year, it is the legacy of Roger Ransome, who began collecting data on the bats when he was just 16 years old. In 2026, the database now stands at around 2,800 individuals.

Over the years, research at Woodchester has uncovered the secrets of greater horseshoe bat natural history. For example, how they choose their hibernacula, how often they wake up during hibernation, how early springs bring early births and the importance of matriline



Woodchester Mansion

(the lineage of descents that can be traced via the female side) in shaping mate choice and foraging habitat.

A major advancement has been the creation of a vast family tree – ‘the pedigree’ – built using DNA samples from every bat born into or immigrating into the population. It now spans nearly 30 generations and 2,000 individuals.

Our recent research built on this foundation, integrating tried and tested methods with new techniques in order to dig deeper.

Using the pedigree, we explored how nature vs nurture shapes the lives of bats like Debra. We found that while body and wing size are largely hereditary, the timing of when females give birth is much more dependent on spring conditions than genetics.

Armed with the pedigree, we also used records of bats found together over 12 winters to construct ‘social networks’.

Much like a ‘bat Facebook’ this allowed us to unpick what drives ‘who’ bats chose to hibernate with.

To our surprise, close relatives were rarely found together – a stark contrast to other long-lived mammals such as dolphins and giraffes. Instead, bats of similar age often shared hibernacula. Going further, we found bats born in the same year formed connections that persisted into adulthood, often being found together in tight clusters.

DNA samples have also allowed us to measure individual ‘telomeres’ – the protective caps on the tips of chromosomes. These caps get shorter in response to physiological stress, providing a biological marker of the recent conditions a bat has experienced. Measuring these over multiple winters revealed that torpor – the temporary lethargic state bats use to survive food shortages – led to longer telomeres, suggesting it allows the bats to recover from stress. However, poor weather conditions (specifically rain in combination with warm temperatures) had the opposite effect. This highlights a growing concern for the species in a changing climate where such weather patterns are becoming more frequent.

Building on this work, we turned from the environmental stresses bats experience to the life-history decisions they make. Using detailed reproductive histories alongside repeated telomere measurements, we showed that females beginning reproduction earlier in life experienced clear short-term costs. Yet, these costs were not deal-breakers; some females repeatedly bred, survived and went on to live long lives with many offspring, showing little evidence of lasting damage.

The results revealed striking differences between individuals in their ability to absorb the costs of reproduction. These resilient “super-mothers” appear to buffer or repair the physiological impacts

of breeding, achieving the rare combination of high reproductive success and long lifespan.

The next phase of work at Woodchester is to understand why some bats age faster than others, and how a few manage to bend the usual rules of ageing altogether.

The Woodchester bats remain extraordinary question-generating machines, where each new answer opens the door to fresh lines of investigation. We remain indebted to Roger and his lifetime of dedication in leading the study.

For us, being some of Gareth Jones’ final PhD students has been a unique privilege. We owe a huge thank you for his patience, insight and generosity as a supervisor throughout our research, and we wish him every happiness in his retirement.



A cluster of greater horseshoe bats

Make your roost count! Monitoring bats at home

By **Philip Briggs**, BCT's Monitoring Manager

If you have bats roosting in your house or property, or know of a roost you have permission to visit, you can help us monitor how the UK's bats are doing by taking part in the Roost Count.

The Roost Count survey is part of the National Bat Monitoring Programme (NBMP), run annually by BCT since 1997. Anyone can take part; you just need to know of a roost at which you can count the bats out when they emerge after sunset.

Many of our Roost Count volunteers are householders who have bats roosting in their properties, so they can simply step outside their house at dusk, with their Roost Count survey form ready to fill in, and count out their furry flying lodgers as they leave to go out and feed.

All bat roosts great and small

Over almost 30 years, more than 3,400 roosts have been surveyed for the Roost Count.

The largest roost is a greater horseshoe bat roost where the highest bat emergence count submitted to date has been 2,466. As this is one of the UK's largest species (about the size of a pear), that's a huge mass of bats! When emerging, the bats pour out of multiple exits and it takes several observers, frantically clicking away on tally counters, to get an accurate count.

Most roosts are much smaller and less complex than this, but it is always a good idea to have someone positioned on each side of the building to check for different exit points, at least when carrying out the first count.

The UK's rarest breeding bat is the grey long-eared bat. We currently only have counts from seven of their roosts, across Devon, Dorset and the Isle of Wight, and we are exploring ways to locate more roosts of this elusive species.

What have we learned from the Roost Count?

Thanks to our volunteers, we are able to produce population trends for seven bat species – these allow us to see how population numbers have increased, declined or remained stable since this survey was created in the late 90s.

Greater horseshoe bats and lesser horseshoe bats are both showing significant increases (222.5% and 73.6% respectively), which is great news considering that these species have shown dramatic historic declines and range contractions. Their



Brown long-eared bats in rafters

improved fortunes are thanks to targeted conservation action, although interestingly, for greater horseshoe bats, there is also evidence that warmer winters may be improving over-winter survival.

However, when we look at the shorter-term picture – trends for the last five years – we see differences between countries for both species. Both continue to increase in Wales, but in England, the greater horseshoe bat trend has levelled out, while lesser horseshoe bat populations appear to be declining.



Sometimes, we need to look at the data the Roost Count provides alongside other surveys; otherwise, we might jump to the wrong conclusion. For example, results from the NBMP Field Survey show that common and soprano pipistrelle are both showing significant increases of 86.8% and 61.5% respectively. However, when we look at Roost Count data, we see downward trends. This doesn't mean that populations are shrinking. Instead, it reflects that these species switch frequently between different roosts, often resulting in roost abandonment. This means that we have lots of roosts where the final year's count is zero since the bats have gone somewhere else, and this pulls the trend downwards.

While this makes it challenging to assess how pipistrelle populations are doing based on roost counts, the data results are still valuable for looking at species distribution, estimating population sizes, and helping ensure that the presence of bat roosts is taken into account when development is being planned in the local area.

The other three species we produce population trends for – Natterer's bat, serotine and brown long-eared bat – are showing relatively stable trends in the long term, but the latter species has shown a 10.6% decline in the last five years.

How you can help

Something else we have seen decline is the number of roosts being monitored each year. The number peaked in 2005 with 968 roosts being counted. Since then, the annual figure has steadily declined and in 2025, we only received counts from 665 roosts.

So, we need more roosts and more volunteers to count bats! We are particularly short of roosts being counted in Northern Ireland, Scotland and Wales.

If you know of a roost that is not currently included in the NBMP Roost Count and you would like to help us by counting the bats out this summer, we would love to hear from you! Counts are carried out on two evenings in June, apart from greater horseshoe bats which are counted in July.

Go to bats.org.uk/roost-nbmp to read more about the survey, watch a short video showing how to take part and sign up. Or contact us at nbmp@bats.org.uk if you have any questions.

National Bat Conference 2026

The next National Bat Conference will take place on
11-13 September at University of Warwick

**Bookings
will open in
April**



"An amazing way to connect with the bat community, I learnt so much and I would love to go again!"

2024 National Bat Conference attendee

Scan the QR code or visit www.bats.org.uk/national-bat-conference
for more information about the programme, workshops and how to book.



**Call for Abstracts – submit your abstract
by the end of April.**

From Chelsea to your garden: how to make space for bats

By **Andreia Correia da Costa**,

BCT's Fundraising and Digital Communications Manager

The Bat Conservation Trust is showcasing its first-ever RHS Chelsea Flower Show garden – the Nocturnal Garden, demonstrating how anyone can create a beautiful, wildlife-friendly garden that supports bats and other nocturnal species.

Every year, I speak with many people who share how much they enjoy sitting in their garden at dusk, watching bats fly around. Some look for the return of 'their' bats every year when the warm weather arrives while others have only just noticed them.

Undoubtedly, the next question is "What can I do in my garden to help bats?"

A garden inspired by bats

The Bat Conservation Trust's Nocturnal Garden at RHS Chelsea is a garden for bats. Designed by Melanie Hick, it combines functionality – encouraging bats, and design – creating a beautiful green space. You can read an interview with Melanie on pages 28-29.

Even if you are new to gardening, this naturalistic and visually striking landscape encourages you to 'think bat' when you are making plans for your garden, your balcony or even a simple container garden.

Some facts about the garden:

- A view from above shows how Melanie applied the shape of a bat's wing and body to the 8 by 6-metre space.
- The back border is made of sustainably sourced timber to be re-assembled into bat boxes when the garden relocates to its permanent home at Clydach Community Gardens in Swansea (don't miss the next issue of Bat News to learn more about the legacy of the garden at Clydach).
- The design style is contemporary and dark, deeply influenced by bats.
- The garden was designed with biodiversity in mind; a diverse selection of plants will attract a range of different insects which different bat species - and other wildlife - will feast on.
- By making use of gentle low light, the garden raises awareness of the beauty of darkness.

A bat garden is a happy garden

The UK's 18 bat species have different needs, but all require adequate shelter, access to places to feed and thriving insect populations to feed on.

So, to create a garden for bats, whether in the city or in the countryside, we need to make insects available all year round.

You'll want to attract different types of insects, which will attract different species of bat, and for that, you'll need to plant a diverse range of plants. Think diversity of plant heights, flower shapes and colours.



BCT Noturnal Garden



And, of course, by encouraging this diversity of plants and insects, you will attract other wildlife too.

Being around green spaces is proven to reduce blood pressure and stress levels in humans, improving mood and overall mental well-being, so you will also benefit from your wildlife garden.

Bring Chelsea to your garden

BCT's Nocturnal Garden has many features that can be integrated into any garden, balcony or green space. Here are just a few:

- Plant tall white or pale flowers like evening primrose, which are more obvious to insects at night.
- Insects love night-scented flowers like night-scented stock.
- Grow a range of different flower shapes to attract different types of insects, from daisy-like flowers for insects with short tongues through to honeysuckle that only insects with long tongues (like moths) can access.
- Include a pond or a water feature. Life for many insects often begins in water as that is where females lay their eggs.
- Allow grass areas to grow long as this is an important habitat for many insect larvae.
- Avoid artificial light, but if you must have it, opt for warm-coloured gentle lights that cast a downward glow (and only have them on as needed).
- Make and/or put up a bat box.

For many other options to choose from, you can download a full plant list of BCT's Nocturnal Garden here: www.bats.org.uk/nocturnal-garden-rhs-chelsea-flower-show.

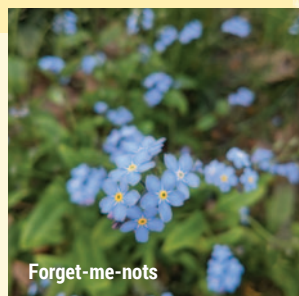
The Bat Conservation Trust's Nocturnal Garden is sponsored by Project Giving Back (PGB).

PGB is a unique, grant-making charity that provides funding for gardens for good causes at the RHS Chelsea Flower Show. PGB was launched in May 2021 in response to the Covid-19 pandemic and its devastating effects on UK charitable fundraising — effects that have since been exacerbated by the cost-of-living crisis.

PGB will fund ten gardens at the RHS Chelsea Flower Show in 2026 and intends to fund a total of 62 gardens inspired by a range of good causes from 2022 to 2026.

PGB aims to boost UK-based good causes by giving them an opportunity to raise awareness of their work at the high-profile RHS Chelsea Flower Show, as well as supporting the relocation of the gardens to permanent homes after the show where they can continue to benefit the charities and their communities.

Find out more at www.givingback.org.uk

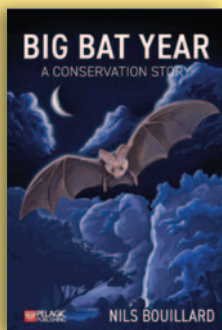


Gift Ideas

www.bats.org.uk/support



If you're stuck for gifts for a birthday, or if you just want to treat yourself, why not order a bat-themed gift from one of our collaborators? Some may even have 1st class shipping!



The best thing is that part of your purchase will be donated to our work to help bats!



Explore the list of small businesses and retailers here:
www.bats.org.uk/support-bats/gifts

A series exploring fantastic bat conservation organisations across the world!

Tutela Pipistrelli: from rescue to research

by **Alessandra Tomassini**

Founded in Rome in December 2012 by a group of experts led by Alessandra Tomassini, Tutela Pipistrelli was created with a clear mission: actively protecting bats and promoting an accurate knowledge of these mammals, which are often misunderstood and subject to prejudice.

Today, the association operates nationwide through research, rescue, rehabilitation and scientific outreach activities. Its main aim is to establish an effective dialogue between the scientific community, institutions and the public, highlighting the key role bats play in biodiversity, conservation and ecosystem services.

At the time of its founding, despite bats being already a protected species and widely distributed throughout Italy, there was no organisation specifically dedicated to bat conservation in Italy. Expertise was fragmented, specialised wildlife recovery centres were few and standardised technical references were lacking. Clinical experience was limited to simple cases, and there was no shared body of veterinary and rehabilitative knowledge for bats. Support for people coexisting with bat colonies was often inadequate, leading to improper or illegal interventions.

Tutela Pipistrelli was established to fill this gap, adopting an integrated approach based on scientific rigor, collaboration and continuous training. Over the past 13 years, the association has built a strong network of wildlife recovery centres, professionals, researchers, volunteers and institutions, promoting the sharing of expertise and the adoption of increasingly effective and responsible practices.

This long path of work, exchange and growth has culminated in the creation of the 'Guidelines for the Rescue and Rehabilitation of Bats,' published by ISPRA (The Italian Institute for Environmental Protection and Research) in 2025.

The document represents a historic milestone for bat conservation in Italy: for the first time, recovery centres have access to a shared, authoritative and up-to-date institutional reference that provides basic veterinary knowledge, operational guidelines for rescue and criteria for proper rehabilitation.

The guidelines originate from years of work, field experience and shared expertise gathered by Tutela Pipistrelli. This tool represents a tangible step forward toward a more uniform, qualified and scientifically grounded management of bats in need.



Educational outreach activity with children inside the flight cage

© Francesca Gentili

In parallel, the association has strengthened intervention systems in areas not covered by recovery centres, training trusted volunteers in first aid and creating local points of reference capable of providing timely assistance. Collaborations with international organisations have also allowed the exchange of best practices and comparison with established rehabilitation models, further enhancing the level of expertise available in Italy.

Tutela Pipistrelli hosts interns from various universities, offering training projects related both to rehabilitation and to the study of bat biology and conservation. Although the main office is in Rome, requests for assistance come from across the country.

The Rome facility includes spaces dedicated to care and rehabilitation, including a 10x10 metre flight enclosure used for training and flight assessment. In addition to temporary patients and growing-up pups, the facility hosts long-term residents and a group of fruit bats, often rescued from seizures, relinquishments or cases of improper keeping. The centre also serves as a hub for public outreach events, fundraising and educational activities.

Alongside rescue and rehabilitation, scientific and cultural dissemination plays a major role in our work, carried out through informational materials, publications, events such as Bat Nights and constant communication via the website and social media. Sharing daily work, explaining the ecological value of bats and providing accurate information is an integral part of the conservation strategy.

Volunteering is at the heart of the association, and community involvement is essential to support its activities, including through 5,000 contributions, donations and participants in events.

Thanks to years of work, training and collaboration, Tutela Pipistrelli is a national reference point for bat conservation. The association's commitment shows how passion, scientific expertise and community participation can become concrete tools for biodiversity protection. The ISPRA Guidelines of 2025 are the most tangible example: a shared knowledge base ready to guide recovery centres and ensure bats receive the respect and protection they deserve.

With the support of volunteers, researchers, institutions and all those who choose to support the association's activities, the future of bats in Italy looks brighter. Every action, from training to reporting animals in need, helps create a solid, participatory conservation ecosystem, where safeguarding wildlife is not only a responsibility but a collective effort capable of making a real difference for these extraordinary species.

If you have any questions about Tutela Pipistrelli or the 2025 ISPRA publication 'Guidelines for the Rescue and Rehabilitation of Bats', please email tutelapipistrelli@gmail.com.



© Alessandra Tomassini



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Top: Savi's pipistrelle during flight tests in the training flight cage
Middle: Egyptian fruit bat showing wing osteoarthritis caused by improper management
Bottom: European free-tailed bat pups rescued from a colony in difficulty



My garden has a second act – and it belongs to the bats

By **Melanie Hick**, designer of the Bat Conservation Trust's Nocturnal Garden at RHS Chelsea Flower Show 2026

It's almost impossible to grow up near the extraordinary grey-headed flying foxes in the Botanic Gardens, Melbourne, and not be deeply inspired by bats.

These extraordinary creatures are enormous, like small cats wrapped in leathery wings, and appear utterly unbothered by the city around them.

As a child, I would see them at dusk as they would fill the sky along the Yarra River, travelling as far as the fruit orchards of central Victoria for the night's feed.

I was completely captivated by these creatures as much as I was by the leaf skeletons left behind as leaf litter rotted away in our garden.

I now take my own young family out to watch bats in the UK and on holiday in places like Lisbon, where you can spot bats in the middle of the city.

When I came to the UK 20 years ago, and eventually trained in garden design at Capel Manor College, I finished my final classroom sessions in what turned out to be the months just before the world went into lockdown. I then set out to make sustainability and biodiversity with style the focus of

my work in garden designs.

Working with the Bat Conservation Trust on this project brought all of that childhood fascination rushing back, but reframed around Britain's own remarkable bat species.

I knew the garden could have a second act long after we are tucked up indoors at night, so the chance to share this message with the international audience of garden lovers at the RHS Chelsea Flower Show was one I had to seize. We are used to planting for pollinators, but this idea takes that thinking one step up the food chain.

The plants that matter most

The dark and moody Nocturnal Garden is my ode to the UK's bats. Its form is black, and shaped like a bat's wing.

It is built around a simple premise: bats eat invertebrates, invertebrates need plants, so plants are a foundation of bat conservation. We've developed a full downloadable plant list, but if I had to name just three that anyone could grow to make a difference, they would be these.



Foxgloves

Night-scented stock is a joy to have at home. It makes sitting out on a summer's evening with a nice glass of something a joy. It's relatively easy to grow, as are most of the plants in the Nocturnal Garden.

Then foxgloves. This is often a wind-blown arriviste. Sometimes found nestled against fences or fallen trees and stumps, it's easy and striking and bees love it too. I am taken by all the new hues, but I do really love the vibrant pink of the species.

Third, ivy. I know it divides opinion, but ivy in flower is one of the most insect-rich plants you can have in a British garden over winter. The late-season nectar supports a cascade of invertebrate life that bats depend on well into October and November. Leave some be and you will also save your own time and energy that would otherwise be spent needlessly pulling it out.

If you have a window box with some shelter, these will grow there, as they will in a park or large garden. This garden is an invitation to all to plant a few bits and pieces that help feed the invertebrates that help to feed bats.

More than planting

A scrying pool that reflects the bright future of bats in the UK is the water element of the garden. Plants are only part of the story. This is still and relatively shallow, showing you how an easy-to-clean water feature can support the invertebrate life cycle that supports bats. This also taps into folk elements of the British nature-focused tradition. We can all do with focusing and reflecting on what's to come and how we can



shape the future. This gentle pool hopefully encourages that.

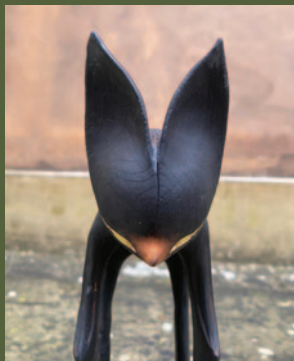
Dark-sky standard lighting matters to bats. So I am working with dark sky specialist, Hudson Lighting, for the garden. Visitors in the evening will see low-level lighting and we will be sure to capture images for those who are not at the evening events. We're talking less lighting and light down, rather than uplighting. As a reader of this magazine, you will know that this helps support the full life cycle of invertebrates.

The timber used in the rear fence will be repurposed into bat boxes after the show, so even the boundary structure will have a second life to support bat conservation.

A benevolent bat mother spirit

I include original art in all my gardens, and for this, I commissioned *Dark Amber* from emerging British artist, Tach Pollard. I first spotted Tach's small-scale sculptures in hawthorn root and asked him to carve at the largest scale he has worked at. He has brought his folkloric spirit to the Nocturnal Garden with a sculpture in reclaimed cedar that stands over 4m high and watches over the garden as a mother bat does her pup.

Dark Amber is available to purchase – a symbol of your support for BCT and bat conservation could live on in your very own garden. See you at Chelsea!



Dark Amber by Tach Pollard

The Bat Conservation Trust's Nocturnal Garden is at RHS Chelsea Flower Show 19–23 May 2026. Download the bat-friendly plant list at bats.org.uk. The garden relocates to Clydach Community Gardens, Swansea, from summer 2026.

Bats, building and Bills: What's next for planning and infrastructure policy?

The Planning and Infrastructure Bill recently passed into law and became the Planning and Infrastructure Act 2025. Our main concerns remain:

- The move away from site-level surveys and the mitigation hierarchy.
- The amount of additional pressure and tasks being given to Natural England, along with a lack of independent oversight of their work in relation to the Act.
- The idea that damage to the environment in one place could be made better with money towards projects in a totally different area.
- The wide-ranging powers given to future governments which are only subject to minor scrutiny and have no clear expiration dates.

Read more here: www.bats.org.uk/news-whats-next-policy.



Join the Sunset Survey Weekend

The Sunset Survey Weekend is 15-17 May 2026. Join in and find out if you have bats near you. As the evenings get warmer and the days get longer, it's the perfect time to watch the sunset and spot bats flying at dusk. Whether you live in the middle of a city or the middle of nowhere, your observations can help us build a clearer picture of how bats are doing across the UK.

That's what the Sunset Survey is all about. It's a simple citizen science activity where you spend a little time watching the sky, and record

whether you see any bats (and other wildlife). You don't need any prior knowledge or equipment – just a bit of curiosity and a spare evening.

You can take part at any time between April – October but we hope you can take part on the official Sunset Survey Weekend: www.bats.org.uk/sunset-survey.

International Year of the Bats 2027 – Save the date

International Year of the Bats 2027 is being organised by the Global Union of Bat Diversity Networks and it will be a global celebration of the world's only flying mammals and the vital roles they play in our ecosystems.

From pollinating plants to controlling insects that damage crops, bats are essential allies to people and the planet.

Keep an eye on this page: www.yearofthebats.org.

Saving the whispering woodland bat

Another fantastic project in the woodlands of Wales is underway. Building on our work in Welsh rain forests, this project will help save the woodland whisperer – the brown long-eared bat.

Volunteers will record roost trees, share data with a new app and learn how to protect bats. This work will guide action in Wales, grow community contact with nature and build understanding of other woodland bats through the project.

This project is funded by the Nature Networks Programme. It is being delivered by the Heritage Fund, on behalf of the Welsh Government.

Read more about the project here: www.bats.org.uk/news/2026/03/whispering-woodland-bat.



© Daniel Hargreaves

Wild Summit – save the date

The Wild Summit will return to the Bristol Beacon this year on the 9 September with a clear purpose: to turn ambition into action for nature's recovery.

BCT will be there and we hope you can join us too.

This event is being organised by Wildlife and Countryside Link and tickets are now available:

www.eventbrite.co.uk/e/the-wild-summit-2026-tickets-1982005258081.





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