



The Echo



Newsletter of the Warwickshire Bat Group

October 1999

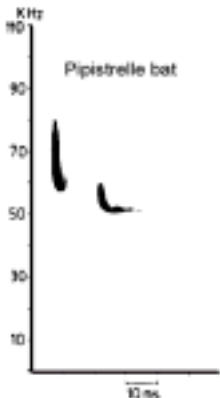
Welcome to the October '99 issue of The Echo. This issue features articles about two events that took place over the summer months. The first is based on the Bat Detector Workshop, which we organised at Coombe Abbey back in June. The second article is a report on part of what was clearly a very interesting national conference.

We've had a very busy summer this year with our new regular informal bat walks and appearances at a number of shows with our displays promoting bats. As ever, the biggest of these shows was the Town & Country Festival, which generated a good deal of interest. We would very much like to thank everyone who took part in and helped organise these events. Well Done!

Do have a look at the events list to see some of the interesting talks that we have lined up for the winter. Talks for 2000 will appear in the next issue of The Echo.

Making More Use of Your Bat Detector tips from a BCT workshop by Paul Elliott

Bat detectors are great for hearing the ultrasonic noises bats make and very useful for helping to locate flying bats. They ought to be great in the identification of species, but that is easier said than done. Do you have a bat detector, but feel that you are not getting all the information from it that you would like?



Back in June an evening workshop on bat detectors was arranged at Coombe Country Park, Coventry. The evening was run by the new assistant conservation officer at the Bat Conservation Trust. It was organised at quite short notice, so what follows is a summary, for the benefit of those who would have liked to attend, but were unable to.

The first part of the evening was about human hearing and the sound features that we mere mortals are able to identify in a bat call...

Three things to remember about human hearing:

- 1) our "sonic memory" is poor - i.e. our memory for sounds is not well developed, but it can be trained;
- 2) we are good at comparing sounds;
- 3) closing our eyes "improves" our hearing (gives our brain

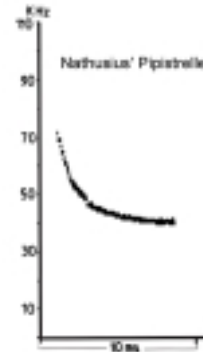
more chance to concentrate on sounds).

There are four elements to sound that can help us understand bat calls:

1) Repetition Rate

This is measured as pulses per second.

The nearer a bat gets to an object that is returning an echo, the faster their repetition rate becomes. This is because bats wait for an echo before producing the next call.



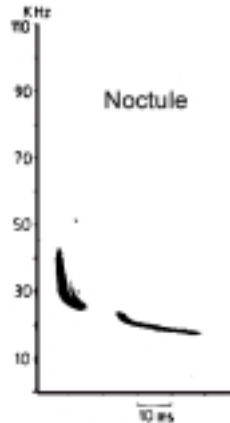
2) Rhythm

This is not something for which there is a technical description. The human ear is pretty good at spotting rhythm and to describe the rhythms in a bat's echolocation we use terms such as:

- constant
- slightly irregular
- very irregular

3) Tonal qualities

This is related to the duration of the call. The longer the call the more time there is for us to notice the tone. Sounds of less than 4ms (milliseconds) have no tonal quality at all as far as our hearing is concerned.



There is a developing vocabulary amongst bat workers to describe the tones and these relate to different duration times.

Tone	Duration (ms)
Ticks	2-3
Clicks	3-4
Slaps	5-7
Chips	10
Tocks	15
Chops	20
Warbles	30

4) Pitch

The human ear is good at detecting small differences in pitch. When listening to a bat detector an ability to identify frequencies between 1-8KHz is important.

Components of Bat Calls

The key features to think about when listening to echolocating bats are:

- Interpulse intervals
- Duration
- Peak frequencies
- Start and end frequencies

Some frequency features of different species:

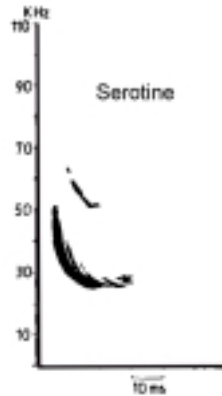
All frequencies in kHz.

Species	Start	End	Bandwidth
Daubenton's	81	29	52
Pipistrelle 55	82	51	31
Pipistrelle 45	71	43	28
Nathusius' pip	50	37	13
Serotine	56	25	31
Noctule	26	18	8

The call of the Daubenton's has a large bandwidth and so you can hear it on a bat detector over a wide range of frequencies. You should first pick them up at around 81kHz and still be able to hear it as you tune down all the way to 52kHz. The tonal quality of the call does not change as you do this though because the call is very short and therefore has little tonal quality. By contrast, a 45kHz Pipistrelle sounds the same at 71 and 60kHz, but very different at 45kHz. This is because the 45kHz component of the call lasts much longer than the rest of the call and so is more tonal. So at 71kHz you hear a clicking call a bit like the *Myotis* species such as Daubenton's, but once you have tuned down to 45kHz you hear the more tonal slaps that are characteristic of Pipistrelles.

By tuning up and down the scale of a bat detector it is even possible to identify different species of Pipistrelle by listening for the point at which the tone of the call changes from click to slap. The slap is the point at which the call peaks because there is more energy used in this longer part of the call. The 55 Pipistrelle peaks at 55kHz, the 45pipistrelle at 45kHz and the Nathusius' Pipistrelle at 39kHz.

At the end of the talk the Bat Group were presented with a constant frequency generator to check the correct tuning of detectors. If you want to check the accuracy of your detector, bring it along to a meeting or walk!



The National Bat Conference 1999 at the University College of Ripon – by Pete Maule

After a long drive I finally arrived at the campus tired, but still looking forward to the Sunday's programme. Registration was followed by the chairman's very warm welcome to all in attendance.

The first speaker was Steven Betts, a conservation and recreation officer for the Environment Agency. He talked about the Agency and its main statutory duties towards conservation and environmental issues. They are working for the protection of bats and their habitats, and Steven told us a story about Daubenton's bats that had made a large summer roost inside an electrical control box. This control box was for the pumping control circuits on a flood defence system and as it stood, the bats could have shorted out the circuits, rendering them inoperative. This could have been disastrous if the adjacent ditches were in flood at the time. The final outcome of this story was a new centrally heated bat box was designed and built with the help of licensed bat workers, with the approval of English Nature. The cost of the box itself, including three woodcrete boxes, was less than £300. However, the total cost of the project was near £3,000, because of hire and erection of scaffolding to access the bat roost site. (Money well spent we all thought!)

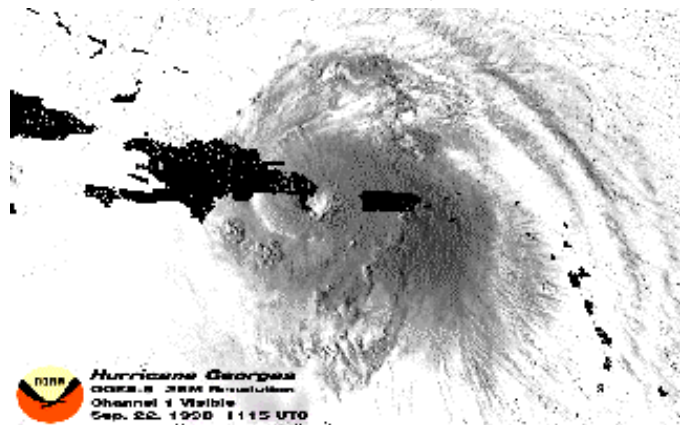
Dr. A Walsh then gave us the latest on the Bat Monitoring Programme (NBMP). Apparently, there is still a vast amount of data to be collected from the volunteers from around the UK, but she was very confident that as the results keep coming in, numbers and patterns will make clearer reading for next year as the planned bat atlas is finalised. She praised all the people involved with this immense project and said we should be proud of what we have achieved so far. (A loud applause from the captivated audience!)

It was then time for Dr. Roger Ransome to talk about Bat Incubators, their value and construction. He explained the importance of the incubators regarding temperature, and that bat populations are almost certainly influenced by many factors, one being the successful growth of the young, which is linked to a favourable climate. These incubators are reasonably cheap to make with modest running costs.

Coffee break, then time for the first of three speakers from the University of Bristol. Steve Rossiter talked about the population and social structure in the Greater Horseshoe Bat. He explained the use of microsatellite markers and a likelihood method of parentage analysis to study breeding behaviour and male reproductive success over a five year period.

Dr. Gareth Jones gave us information on mysterious *Mystacina*, an unusual bat from New Zealand. This Lesser Short-Tailed Bat spends considerable time foraging on the ground and he explained his experiments on how *Mystacina tuberculata* locates insect prey under controlled laboratory conditions that mimic natural situations. (See page 4 for more about these interesting bats)

Arjan Boonman then tried to explain the shape of echolocation calls and their functionality. (See the article on page 1 for more information about echolocation calls.) He seemed to have a difficult task getting his message across to the packed hall and I was not alone in having difficulty understanding some of it. Apparently, radar literature suggests that signal curvature could be important in reducing ranging errors due to the bats own flight speed, By using both ambiguity diagrams and a filter bank model he investigated all possible ranging errors caused by a wide range of calls types and curvatures.



Caribbean Bats was the next topic with a very interesting talk by Dr. Kate Barlow. She told us about the effects that Hurricane Georges had on bats of Puerto Rico in September 1998. Kate's group monitored several habitats and roost sites over a long period of time to get the overall picture. Their results suggest that insectivorous bats were least affected by the hurricane and that frugivores were not greatly affected, whereas omnivores and nectarivores were. Disturbance caused by the hurricane does have a significant effect on bat populations and some species are more sensitive to that disturbance than others.

St Cuthberts bats and the emergence patterns of Daubenton's bats were the observations of Colin Howes of Doncaster Museum, and he had some interesting and amusing stories for us but unfortunately time was against him as the programme was running late and his talk had to be cut short. (Lunch Time)

After lunch, I wandered around the excellent bat display area that was attracting the attention of most people. There was plenty to see and do before me next session started.

Shirley Thompson of Kent Bat Group then explained ways of raising awareness of bats to the public and talked about the work of her group. She felt that some UK bat groups could put more effort into promoting bat awareness amongst the general public. She mentioned specific target areas such as fetes and school visits. (Shirley then went on to praise the efforts of the Warwickshire Bat Group and said the promotional work we do was excellent, adding that other groups could well follow our example. I felt very proud while sitting on the front row.)

Batty Holidays, a joint project to promote holidays to see bats, was then explained by Jean Matthews (Gwynedd Bat Group and Brian Keeley (Dublin Bat Group). Many hotels and guesthouses that have bat roosts are being asked to promote this unique form of tourism and the response from them seems to be very good in Wales and Ireland. This project

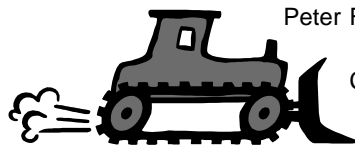
certainly grabbed the full attention of the packed hall and I think they could be on to a winner!

Noel Jackson (Durham Bat Group) talked about how his group make planners work for the bats. He said most planning applications are for minor changes to modern buildings and thus unlikely to effect bats and bat groups do not have the personnel to follow up on these types of development unless they affect a known roost.

His bat group has implemented criteria that the planners could use to identify likely bat sites so that the bat group would automatically be consulted on important cases. The bat group worked with the Chief Planning Officers to agree the following trigger points:

- Properties older than 1939 with multiple roofs and within 200m of woodland or water;
- Properties older then 1914 within 200m of woodland or water;
- Trees over 100 years old or with a girth of 1.5m or more.

This is proving to be very successful and in cases when they are unsure of the importance to bats and the need for a proper bat survey is Included as a condition of granting the planning permission. Noel also pointed out that the Durham Bat Group charges a professional fee for their surveys and advice in these cases and that the bat group has never been richer!



Peter Fenn gave the final talk of the day entitled "Bats and Construction" about the work being carried out at UMIST, which is part funded by the Royal Institution or Chartered Surveyors. Bats and construction often coincide and produce conflict, yet there is little research to guide construction professionals. He added that he is by no means an expert on bats and is certainly not an apologist for the construction industry. He feels that improved detection techniques, awareness raising, and sympathetic construction is what is needed in future. He also said that construction operations that make bats particularly vulnerable must be discussed and that suggestions advice and any feedback from bat groups could only help their research. (A very loud applause from the audience).

Julia Hanmer then closed the 1999 Bat Conference by thanking all the speakers, and helpers and everyone involved with the event and wished us all a safe journey home.

Having witnessed all this excellent bat work at the conference, I left the campus contented that bat conservation is definitely in safe hands.

Letters

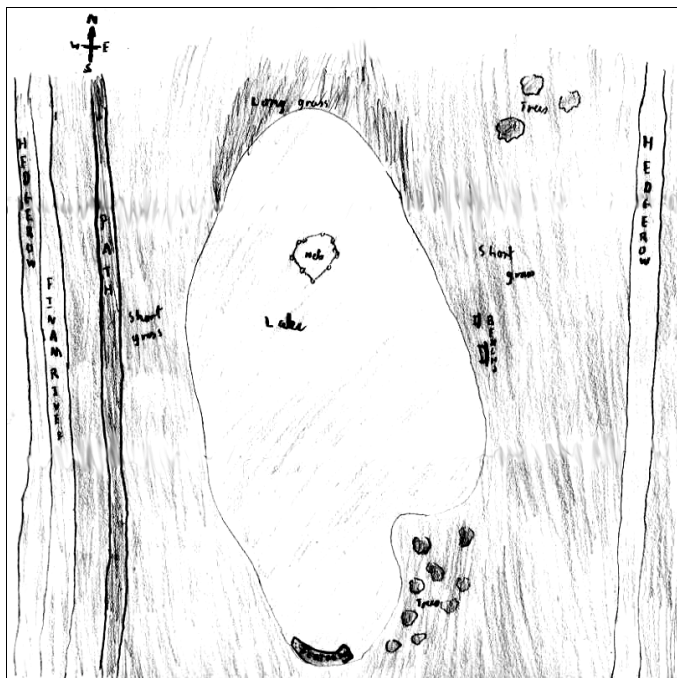
"Our small breeding colony, which spreads onto my neighbour's house, was about the same size as last year. The bats came about the same time, in June, but stayed on (or some members did) a later into August than usual. Back in April the estate replaced all the doors, windows, bargeboards,

fascia boards and other woodwork with PVC. We were worried in case the bats found this inhospitable but, happily, not so. Its seems likely that they roost and breed under the tiles which are hung around the sides of the houses. Wherever they do so, they seem to be quite happy. On our side they did move along a little but stayed with us. No casualties observed."

Elizabeth Parry

If any other readers would like to write and tell us about "their" bats then please do!

"I am writing to tell you about Abbey Fields in Kenilworth and the bat population living there. I have counted about 50 Pipistrelle, 20 Noctule and 2 Daubenton's bats. The Pipistrelle are best seen at the hedgerow to the East of the lake and the tall grass at the Northern tip of the lake. The Noctule appears from the hedgerow on the West of the lake for about 20 after that they fly over the lake. The Daubenton's are best seen at the platform at the South of the lake. I believe this would be a good place for a bat walk."



David Wallis

Thanks for that information David, it's always useful to know about good locations for possible bat walks. We have not had one at Abbey Fields and with a lake, hedgerows and mixed height grassland, it sounds ideal!

Bat Diary

Thursday 4th November – 7:30pm

"Bats & Bat Work in Leics" (Joe and Alison Kirkwood)

The Miller Suite, The Visitor Centre, Coombe Country Park, Brinklow Road near Coventry.

A chance to meet our neighbours from Leics bat group, share experiences and learn about different approaches to bat work.

Thursday 25th November – 7:30pm

"Vampire bats - Myth and Reality" (Paul Elliott)

Avon Building, Westwood Site, University of Warwick, Kirby Corner Road, Coventry.

Learn some of the latest information about these amazing creatures.

Thursday 9th December – 7:30pm

"Land of the Giant Bat" (Paola & John Davis)

This will be our Christmas talk so please bring some nibbles!

Avon Building, Westwood Site, University of Warwick, Kirby Corner Road, Coventry.

An exclusive pre-view of a film about fruit bats of the Comoros Islands and a chance to hear about the work of the Cresswell Associates telephone help line. This will be especially useful for those recently licensed members who will be receiving calls from Batline.

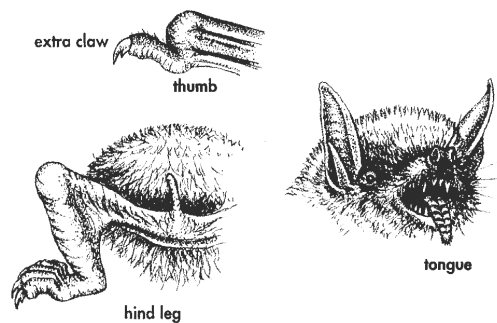
If anyone needs more information about how to find Coombe Abbey or the University of Warwick then please get in touch.

Lesser Short-Tailed Bat

(*Mystacina tuberculata*)

You have to travel to New Zealand to see this bat, as it is found solely on these islands. It spends most of its time on the ground and has evolved unique adaptations to aid its terrestrial existence.

Its wing membranes along the forearms and body are leathery and the wings can be folded partially away into a body pouch so that it can climb and run with great agility. Also, to help it grip on steep or smooth surfaces it has small talons on its thumb and feet claws. Along with its fellow species *Mystacina robusta*, it has the thickest fur of any bat and sports short broad feet on short thick legs.



The thumbs and feet of Lesser Short-tailed Bats have small, additional claws at the base. The tongue is deeply ridged, with a small, brushlike tip.

It is the only insectivorous Old World bat that also feeds on pollen and is known to supplement its diet with fruit, nectar and carrion. It roosts in hollow trees, caves, seabird burrows and cliff holes. Unusually for a bat, it digs holes in fallen trees to use as a roost and doesn't seem to fly very far in its travels. They don't hibernate and the females bear one pup a year in December/January.