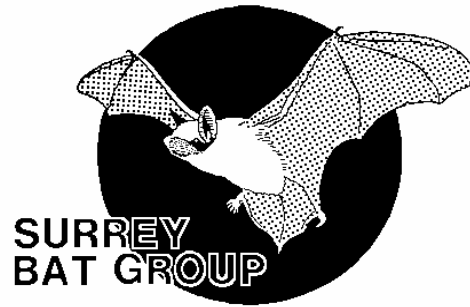


THE BAT DETECTOR

The Quarterly Newsletter of
Surrey Bat Group



Giving bats a better chance.

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March 2010
Issue 56

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The Bat Detector by e-mail

For some of you it will be obvious, for others not, that we are offering the newsletter by e-mail. If you have the old style paper copy it is probably because we don't have an e-mail address for you. If you have been sent a paper copy and would prefer to receive it by e-mail in future please e-mail your e-mail address to Ross and Lynn at ross.lynn@zen.co.uk. You can also e-mail them if, by any chance, you have got the e-version but would prefer to have a paper copy.

2010 subscriptions

Thank you to those who have renewed your subscriptions. Unfortunately quite a number have yet to pay this year's sub. It can be difficult to remember if you have paid or not – if you're not sure you can e-mail Derek (derekprue@btinternet.com) to find out. Those who had a reminder label on their envelope (if receiving a paper copy) haven't paid. If you didn't have a reminder label you have paid, thanks. To pay send a cheque for £5, payable to Surrey Bat Group, to Derek Smith, 20 Carroll Avenue, Merrow, Guildford, Surrey, GU1 2QJ.

Lucky Break



Thanks to Sue Harris for spotting and photographing this fortuitously shaped window hole somewhere in Surrey. Let's hope the apparent bat didn't feel too much pain!

White Nose Syndrome

White nose syndrome, first discovered in New York State in February 2006, is associated with hibernating, cave-roosting bats. A conspicuous white fungus grows on the face, ears, or wings of stricken bats, with infiltration of the hyphae into membranes and tissues. Bats that exhibit WNS frequently have few or no fat reserves, which are essential for their survival throughout and after hibernation, although recent studies show that many affected bats are not emaciated. The fungus associated with WNS is a newly described, psychrophilic (cold-loving) species, *Geomyces destructans* (closely related to *G. pannorum*, which causes skin infections in humans.)



Little brown bat; close-up of nose with fungus, New York, Oct. 2008. Photo Ryan von Linden/New York Department of Environmental Conservation

The spread of WNS in the north eastern states of the USA has been devastating. As stated on Bat Conservation International's website, www.batcon.org : "Since WNS was discovered in a New York cave in February 2006, an estimated million or more hibernating bats of six species have been killed by the disease in ten states. Mortality rates approaching 100 percent are reported at some sites. The disease moved beyond the Northeast last winter, reaching into West Virginia, Virginia, and now Tennessee. It threatens some of the largest hibernating caves for endangered Indiana myotis, gray myotis, and Virginia big-eared bats. Ultimately, bats across North America are at imminent risk."

The current situation in the USA

Hellhole, West Virginia's most important bat cave, has white-nose syndrome, according to West Virginia Division of Natural Resources and the Service. The privately owned cave supports 200,000 hibernating bats, including 5,000 Virginia big-eared bats and 13,000 Indiana bats, both endangered. A large number of little brown bats (not endangered) also hibernate in the cave. White-nose syndrome has spread to Tennessee, the 10th state to be afflicted with the deadly disease that has claimed the lives of a million bats from New Hampshire to Virginia during the past four years. Two bats tested positive for WNS, the Tennessee Wildlife Resources Agency announced Feb. 16. Congress appropriated \$1.9 million earlier this fiscal year for work on WNS.

WNS confirmed in France

In their paper "White-Nose Syndrome Fungus (*Geomyces destructans*) in Bat, France," authors SJ Puechmaille, P Verdeyroux , H Fuller, M Ar Gouilh, M Bekaert and EC Teeling, state: "During intensive monitoring of bat hibernation in France, 1 bat (*Myotis myotis*) found on March 12, 2009, near Périgueux, showed a powdery, white fungal growth on its nose, which is characteristic of WNS. Sterile dry cotton swabs were used to collect fungus material from the nose of the bat." Microscopic and DNA examination of the samples confirmed that the fungus was *Geomyces destructans*. In their discussion the authors state: "Our results show that the WNS fungus was present in a bat in France and has implications for WNS research, bat conservation, and emerging infectious disease control. We suggest 3 possible scenarios for our findings.

The first scenario is that the fungus has only recently arrived in Europe and all bats in Europe are now at risk for infection. A second scenario is that the fungus has been present in Europe for a long time. Because mass deaths have not been observed in bats in Europe, these bats may be immune to WNS. Therefore, identification of mechanisms of this immunity will advance understanding of this disease and fungus resistance in mammals. The third scenario is that the *G. destructans* fungus is not the primary cause of death but acts as an opportunistic pathogen in bats already immunocompromised by other pathogens such as viruses or bacteria. Comparison of pathogens in bats in Europe and the United States infected with *G. destructans* should identify the primary causative agent.

The bat in our study showing fungal growth was not underweight, as is typical of bats in the United States with WNS. This finding favours the second or third scenarios. Also, a 6-year (2004–2009) annual monitoring program of wintering bat populations at the site and 5 sites within a 2-km radius did not show any cases of WNS or deaths and showed stable bat populations. The 3 scenarios indicate that studying *G. destructans* in bats in Europe and the United States is necessary to understand and control this disease.”

The link for the paper is www.cdc.gov/eid/content/16/2/pdfs/09-1391.pdf

Symptoms of "White Nose Syndrome" in a bat reported in Slovakia

In a report dated 14 February 2010 workers from Slovakia said, “During the winter census of bats in the Slovak Karst, we saw this week, 4 bats with signs of White Nose Syndrome. The first cases we found 11th February 2010 on one of the largest wintering lesser mouse eared bat (*Myotis blythii*) sites, where from a total of 232 individuals two have shown symptoms of the disease. One of them had white mould in various stages of development for all bare parts including the nose. In another bat mould was seen only in wing membranes and especially around the forearm. Further bats with similar symptoms, were found the same day in a cave, only 500 m away from the first location. In this case, however, it was a greater mouse eared bat (*Myotis myotis*), which had white mould, especially on wing membranes and partly to the ear.” It appears that in these cases it has not been confirmed that the fungus is *Geomyces destructans* (though it seems reasonable to suppose that it is).

What next?

Although signs of WNS have not been found in the UK it is obviously a matter of grave concern that it might. The Bat Conservation Trust has useful information and advice on its website. See: www.bats.org.uk/pages/about_bats-white-nose_syndrome-586.html where there are several links to more information. Click on [White-nose Syndrome guidelines for bat workers and cavers](#) to get important advice in a British context.

While much research has been and is being carried out urgently, much is still not known. For example it is not known whether the fungus is what ultimately kills the bat or whether the fungus is able to take a hold in bats which are suffering from some other, unidentified lethal condition. Worst of all, what is still unknown is what to do about it or, indeed, if there is anything that can be done to help.

An impression of the ideas going around can be found in the White Nose Syndrome March 2009 Status Report (see www.caves.org/WNS/WNS2009research.pdf) To choose just two examples from this:

On the European perspective: “A warning and call for help was issued to bat researchers in Europe. If this new fungus is an invasive species encountering new ecosystems, something in its native ecosystem may inhibit its growth or contain its invasive characteristics. If the fungus is endemic to Europe, then how local bats survived may hold lessons for the survivability of bats in the U.S. And, if the fungus isn’t in Europe, they’d like to keep it that way. Protocols for field identification, laboratory analysis, and decontamination were quickly developed (based in part on US experience), and international contacts were firmed among researchers.”

On possible drastic solutions (no consensus): “Is now the time to undertake drastic measures in an attempt to control WNS? There were two assumptions put forth: Based on the rate of spread of WNS, a biological agent is involved. Spread of WNS is most easily explained by bat to bat transmission, with some transmission occurring at maternity sites. Britzke defended the position that drastic control measures, such as colony destruction, were needed at affected sites. Most bats at a WNS site will die anyway. Those who survive will go on to contaminate others. WNS is caused by an infectious agent. As bat biologists concerned about all bat species, don’t we have an obligation to collect all bats at affected sites?”

2009/2010 Hibernation Season

A number of underground sites in Surrey have been regularly visited in winter to record hibernating bats present. In some cases this monitoring dates back to the 1980s. The sites are of various sorts but the geology of the county means we have no natural caves. There are icehouses and artificial grottos in the grounds of grand houses, the old lime kilns at Brockham and Betchworth, Box Hill Fort and old, long disused chalk mines of which Westhumble is the most important (that is, more hibernating bats are found there than at any other site). Westhumble, indeed, is not only the only site where a hibernating Bechstein's bat was found this winter but the species has been found there in eight visits, though only Dec 09 this winter. In Feb 08 two Bechstein's bats were found there. Single Bechstein's bats were at Brockham Lime Kilns Dec 01 and Betchworth Lime Kilns Dec 05.



Natterer's bat, bejewelled with condensation, Westhumble. Searching for hibernating bats at Westhumble.

While we are on "league tables" there was a greater horseshoe bat hibernating in Westhumble, characteristically hanging conspicuously from the ceiling, for four consecutive winters, the first sighting being Nov 93 and the last Feb 97. However, it was Betchworth Lime Kilns where a northern bat, *Eptesicus nilssonii*, was found hibernating in Jan 87. This was the first of only four recorded in the UK. (The second was on a North Sea oil platform Aug 96: AM Hutson in "Mammals of the British Isles: Handbook 4th edition," ed. S Harris & DW Yalden.)

Records for the 2009/2010 winter are summarised in the table below. The most important sites are visited in December, January and February and the numbers of bats seen can be different on each visit. The numbers in the table indicate the maximum number of a particular species seen in any one of three visits. (For example, at Brockham there was 1 Natterer's bat seen in Dec, 3 in Jan and 4 in Feb, so 4 is entered in the table.)

Site name	Natterer's bat	Daubenton's bat	Whiskered/Brandt's bat	Bechstein's bat	Brown long-eared bat
Albury	11	2			
Betchworth	2	2	3		
Brockham	3	4	3		1
Box Hill	2		3		2
Busbridge	16	4	1		4
Clandon	15				2
Hatchford	4				1
Godstone Mines	15	24	5		2
Westhumble	33	9	1	1	2



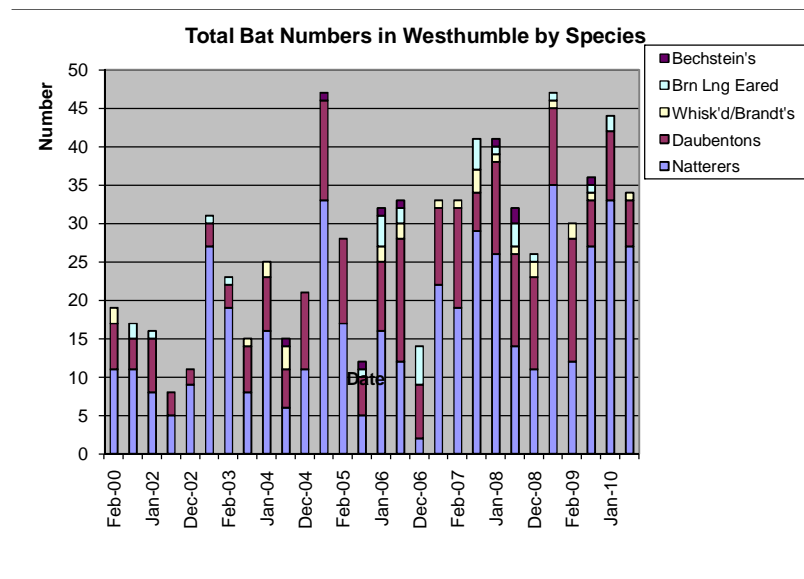
Whiskered/Brandt's between bricks, Brockham Lime Kilns.



Brockham Lime Kilns. Photos, Derek Smith.

Note also that "Godstone Mines" is a collective name given to a complex of underground sites in the area. Also note that due to the fact that whiskered and Brandt's bats can only be distinguished in the hand, which causes too much disturbance in hibernation, the species are recorded together.

It will be seen that it is mainly the *Myotis* species that use these sites but with brown long eared bats also. Sometimes they can be seen hanging on the walls but often they squeeze into cracks. Some bats are so deep in the cracks that they are difficult to identify and there are doubtless plenty which are out of sight. Numbers vary from year to year and generally the colder the weather the more bats are found underground. With this last winter being a proper cold one high numbers were expected. This was born out most strikingly at Clandon grotto where 15 Natterer's bats were found Jan 10, the highest previous total was 6 in Jan and Feb 09. 2 common pipistrelles (45 kHz) were found here. It is highly unusual to find pipistrelles in these underground sites.



Noctules hibernate in the big, well insulated, woodcrete bat boxes at Thursley Common, the group occupying several boxes spread over a number of trees. The noctule numbers have gone from strength to strength with 44 in 2002, 56 in 2005, 88 in 2008 and a record 91 in Jan 2010. Pipistrelles and brown long eared bats have occasionally been found hibernating in bat boxes there.

The male greater mouse eared bat, discovered in a West Sussex hibernaculum in Dec 2002, was present there again for this, his eighth winter. He remains the only individual of his species to have been seen in this country over that time and still no-one knows where he goes when he isn't hibernating.

“A bat can eat up to 3000 mosquitoes a night”

I have read statements such as this many times but it wasn't until one occasion last December that I suddenly wondered how accurate that could be. Did the claim rest on the weight of insects consumed and really mean the equivalent of 3000 mosquitoes per night? I did a bit of maths and worked out how many would have to be caught per minute in the hours of darkness and it seemed to me to be an unfeasibly large number. I wasn't necessarily doubting it outright but it did make me want to find out what the claim was based on.

Somewhat warily I posted my query on the UKbats internet forum – warily because acrimonious responses flare up sometimes over the most innocuous seeming things.

The first responses were words to the effect of “Well obviously such claims are rubbish.”

This was swiftly followed by cries of anguish and anger at those people discrediting favourite and popular bat facts – and somehow even the pros and cons of belief in Father Christmas entered the debate. (Well, it was December!)

Sanity was restored by one David Lee, a contributor always to be relied upon to give the definitive, scientific answer to controversial bat questions. What follow are some of what he found in the bat literature.

Feeding Ecology of *Pipistrellus pipistrellus* During Pregnancy and Lactation. II. Diet

S. M. Swift; P. A. Racey; M. I. Avery, *The Journal of Animal Ecology*, Vol. 54, No. 1. (Feb, 1985), pp. 217-225.

"At high insect densities, (when selective feeding would be most likely to occur), pipistrelles can average ten feeding attempts per minute and sometimes achieve attempt rates of up to 20 per min"

"Capture success of little brown bats (*Myotis lucifugus*) feeding on mosquitoes" Jens Rydell, Doreen Parker McNeill and Johan Eklöf *Journal of Zoology* (2002), 256:3:379-381 Abstract

"A small colony of little brown bats, *Myotis lucifugus*, was observed feeding on mosquitoes (Culicidae) inside a barn near Fairbanks, Alaska in June 2000. Observations were made visually and with a bat detector. All capture attempts were associated with feeding buzzes, indicating that the bats used echolocation to detect and track the insects, although the light was bright and the insects were easily seen by us. The capture efficiency of the bats was 92%. The insects did not show any defensive behaviour in response to approaching bats."

John Altringham *Bats - Biology and Behaviour* (Oxford 1996) p172

"All bats which feed on the wing are relatively small and encounter prey quite frequently (1 - 20 each minute, with a capture success rate of about 40%, reviewed by Fenton).

Gerhard Neuweiler, *The Biology of Bats* (Oxford 2000) p104 ENERGY BALANCE

"Field metabolic rates of pregnant and lactating *M lucifugus*, living freely in a nursery colony, were measured using the doubly-labelled water technique. It was found that 95% of digestible nutrient energy was absorbed and assimilated and about 15% of the assimilated protein was lost as urea.

Analysis of insect composition shows that each gram of an "average" insect diet provides 6KJ of assimilable energy. Thus a pregnant female *M. lucifugus* requires 5.5g of insects (61% of her body weight) every day and a nursing female 6.7g (85% of body weight) in order to avoid using her fat reserves (although lactating females do draw on some fat reserves as they lose weight during the suckling period).

If we assume a diet of mosquitoes (as in Jens Rydell's study) - even assuming the maximum weight for a mosquito of about 2.5g - a pregnant *M. lucifugus* will require to eat 2200 mosquitoes per night. I don't have data for the weight of an "average" Culicidae species but taking 1.8g as a reasonable estimate would lead to a requirement to consume around 3060 insects per night.

Thus, the statement of a bat consuming “up to 3000 insects in a night” would appear to be based in fact - both from the energy requirement of a pregnant female and the sustainable capture rate that can be achieved.

Barbastelle Event

At the January 2010 meeting the speaker was Bob Cornes from Bedfordshire Bat Group. The subject of the talk was the Hungarian holiday that some members of Beds BG went on last year (six of us, so far, from Surrey BG are going this year) but as Bob had recently found an amazing twenty hibernating barbastelles in an underground hibernaculum, Ross Baker made much of this. This fired the imagination of someone at the meeting and at the end they asked Bob whether it would be possible to see some barbastelles in Bedfordshire. Bob got back to me with the following offer:

“The best place to see barbastelles locally in summer is Wimpole in Cambridgeshire. There are no access issues at the site and the bats are pretty reliable unless weather conditions are unfavourable. I've mentioned this to Chris Vine (Cambridgeshire Bat Group), and he would be happy to show a group of people around. He and I have done a double act there for (I think) three other bat groups and it generally works very well. What we've done is Chris does a guided tour of some roost trees while I set up a mist net on the main ride. The group then stand at a central point of the wood to wait for Barbs to fly past (which they generally do very obligingly at lowish level) and they both see the bats and hear them on detectors. By the time that's happened, I've caught a Barb in the mist net (never guaranteed, but we've been lucky so far), so people have a close view. Chris has sometimes radio-tagged the bat before release.

If a number of Surrey BG members would be interested, we could arrange a date for that. The best time of year would probably be mid to late spring (say the second half of May or the beginning of June). It shouldn't be a bad journey from Surrey - round the M25 and up the M11 takes you very close to Wimpole.”

This may strike some people as a long way to go but some car sharing can be sorted. If you are interested please let Derek Smith know (preferably e-mail derekprue@btinternet.com or, if you don't have e-mail, phone 01483 539476) and he will liaise with Bob. (Derek's going!)

Bat Group Funding for BCT Investigations Officer

Over the years a number of bat groups have donated money to the Bat Conservation Trust to assist with funding for an Investigations Officer. Dr Kate Barlow filled the role in 2009, this leading to the investigation of 124 suspected bat crimes in that year, four of which are currently in the process of going to court. Most bat crimes concern unauthorised demolition or development of buildings containing bat roosts. The fact that more bat crime cases are going to prosecution and fines are increasing shows that bat crime is starting to be taken seriously by the courts. However there is still a long way to go before the decisions being issued in court are an effective deterrent and further work is needed to ensure compliance and good practice is being followed.

The Investigations Project aims to prevent and investigate bat related crime, working closely with the police, the National Wildlife Crime Unit, the statutory nature conservation organisations, bat groups, bat workers and the public. In 2009 the National Wildlife Crime Unit decided not to grant an extension to the dedicated Operation Bat Project Officer role. This means that the Investigations Project is even more important in pushing through cases to court, following up on incidents and supporting Wildlife Crime Officers. This increased responsibility makes 2010 a critical year for the project.

BCT states, “The Investigations Project is a vital part of our work, yet it continues to be an area that we struggle to fund and we are reliant on the continued support of bat groups to help us to keep this project going. BCT needs £21,000 to run the Investigations Project in 2010, of which we hope to raise £15,000 from bat groups.

BCT has appointed Peter Charlestone as our new Investigations Officer. Peter is a retired Wildlife Crime Officer with a wealth of experience working with the National Wildlife Crime Unit and the Association of Chief Police Officers on bat crime. He has been involved in a number of cases that went to prosecution, provided guidance on the handling of cases, and is well placed to take the Investigations Project forward in 2010. There are several areas of work that we would like to explore this coming year, such as a review of Magistrates Court Sentencing and Guidelines and guidance on enforcement for police officers investigating bat crime. Any support that you can give us will make a big difference to what we are able to achieve.”

Surrey Bat Group is providing £1000 towards this cause.

Forthcoming Events

Thursday 18th March, 8pm - Behind the Bat Conservation Trust - Dr Karen Haysom, the BCT's Director of Conservation, will provide an update on the Trust's projects from a local to an international level, including a sneak preview of its forthcoming publication on providing bat roosts within new buildings. This will be at our usual talk venue, the National Trust's Dapdune Wharf tearoom. It is off Wharf Road, Guildford. Wharf Road is off Woodbridge Road, between the Methodist church and the southern side of the cricket ground. Go to the end of Wharf Road, through the National Trust gate on the right, along a roadway over speed bumps to the car park on the left.

Saturday 17th April - Surrey Bat Group bat walk/detector practice/Nathusius' hunt at Frensham Little Pond, weather permitting (details to be confirmed by email so anyone without email should contact us at end of March for details.)

Saturday 8th May – National Trust Bat Walk, Claremont Landscape Gardens (between Esher and Cobham). Meet in the car park just inside the entrance which is on the A307, Portsmouth Road (on the right hand side if you are driving north), TQ128632. Start time 8.30pm. (Don't be late or the entrance gate may be shut.) Free to Surrey Bat Group members – those using bat detectors (without headphones on this occasion) will be a help to members of the public taking part. Please contact Ross and Lynn a week or so before if you plan to attend, as NT need to know numbers.

Late May/early June (actual date to be decided) **Barbastelle Event**. It's quite a long way but do you want to see one or not? Further details page 7.

Saturday 4 September National Trust Bat Walk, Claremont Landscape Gardens – as for 8th May (see above) but start time 7.30pm.

Bat Box Checks will be carried out in spring and autumn. These start in the morning at weekends but the days are chosen at relatively short notice so details will be sent out to those on the e-mail list. If you are interested but don't have e-mail you can phone Ross and Lynn for information (contact details below).

Other summer events to be confirmed and advertised by e-mail/in the June newsletter.

Ross and Lynn, e-mail: ross.lynn@zen.co.uk, phone: 01932 842636.

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Views expressed in The Bat Detector may not be those of the Surrey Bat Group or any other organisation.

All uncredited articles by Derek Smith.

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