



NATIONAL BAT MONITORING PROGRAMME

Ever wanted to do add some really useful data into a national monitoring program? This is your chance. The National Bat Monitoring Program (NBMP) run by the Bat Conservation Trust (BCT) is the ideal opportunity. The program ranges from very simple surveys that need no equipment through to more advanced surveys that need some good bat detector skills. The surveys provide data that is used to monitor bat populations nationally and that are used to develop strategies for the conservation of bats. You can really add value to this process.

What can I do?

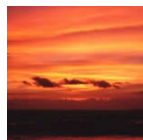
The main surveys are:

- Sunrise and Sunset Surveys
• Roost Surveys
• Waterway Survey
• Field Surveys

Sunrise and Sunset Surveys

Well if you want to take on the easiest survey then why not join in on the Sunrise and Sunset Survey. All this requires is for you to look for bats in the evening and the morning the weekend of the 22/23 July 2007. If you can't actually do it that weekend then you can do the survey on other weekends close to the date. The Sunset Survey couldn't be easier! Simply spend the evening in your garden and watch out for any bats that fly past. Record how many bats you see, which species they are (if you think you know) and, most importantly, which direction they are flying from.

The Sunrise Survey involves going out just before dawn to look for bats swarming before they return to their roost. If you have already done the Sunset Survey and saw bats flying past, you should walk in the direction from which most of them seemed to be coming. This survey is aimed at beginners and is



an excellent way of contributing to the monitoring programme if you don't have any previous experience of bat surveying.

Roost Surveys

Roost surveys obviously need a bat roost. If you know of one then you can use that as the roost to survey. We are always interested in finding new roosts so if you know of one and aren't sure if the bat group knows about it then drop us a line. A roost is any location in a building or natural habitat where bats spend any time at all. So that includes the odd 'sleep over' that might occur. We are always keen to learn more about where our bats roost. This is an easy survey to get involved with and we might even be able to find a roost for you to count.

Waterway Surveys

The waterway surveys involve counting Daubenton's bats that pass certain points on a section of waterway, river or canal, that is allocated to you. This requires a bat detector and some basic bat detector skills. So if you have a bat detector then this could be the one for you to start with. The survey needs you to go and check out the site before you start then to survey the site on two separate nights in August. If you don't really know how to use a bat detector then why not come on the BCT bat detector training workshop.

Field Surveys

The largest field survey is the Noctule - Serotine - Pipistrelle Survey. This is the most complex of the basic surveys. It requires some more advanced bat detector skills. However, with a bit of training and some practice this is a great survey



to get involved in and to quickly improve your skills with a detector and enjoy some interesting times in the countryside in the dark. A 1km square is transacted monitoring noctule and serotine bats whilst you walk and Pipistrelle bats whilst you stand at spots. Best to do the training if you have not done this one before you have a go.

Other more complex field surveys are undertaken and are being developed as well, including woodland surveys for barbastelle Bats.

Training.

The BCT runs Bat Detector Training Workshops to train those who want to partake in the Waterway or Field Surveys. These courses cost £20 each and cover the cost of training the trainer, hire of the venue, course materials and equipment. If you are interested in coming on a course then one will be run in

Warwickshire on Saturday 26th May at Brandon Marsh. Contact the Andrew (Email: andrew@theheaths.org Tel: 0121 244 8946) for further information.

BATS & ROADSIDE MAMMALS SURVEY - 2007

BCT has secured funding to continue its popular Bats & Roadside Mammals Survey into 2007. The project has been successfully run across the UK for the past 2 years in a partnership between the BCT and the Mammals Trust UK. Surveys are carried out by volunteers on a county level and are organised through the local Bat Groups. Last year 14 bat groups took part and in 2007 the objective is to involve a total of 20. From May to September bat group members drive a monthly 25 mile route at 15mph to survey for bat species and other mammals. Time expansion bat detectors record continuously en route while drivers and passengers make a note of any visually observed mammals.



The survey works in two major ways. Firstly, new observations of species help to increase local knowledge and hence help conservation efforts. The survey is biased towards species that use roadside habitats, but so far 10 bat species/species groups have been recorded along with 28 other mammal species/species groups. Secondly, the survey fulfils a role in long-term UK and county population monitoring. During 5428 bats were recorded and 511 records of other mammal species were gathered.

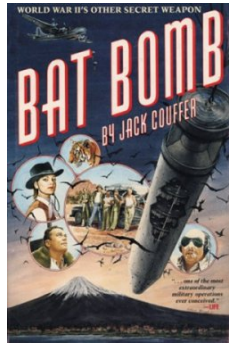
In Warwickshire in 2006 we surveyed seven separate transects plus one repeat which resulted in 738 new bat records and 61 visually observed mammal records.

If you would like to be involved, or would like more information, please contact Jon Russ (Bats & Roadside Mammals Coordinator, Tel: 02476 336493, Email: roadsurvey@bats.org.uk).

KAMIKAZE BATS

Nowadays, it may seem unethical to consider using any living creature as a delivery device for a weapon, especially where it's likely that it would be a one-way trip for that animal. However, back in 1941, America was in the midst of a war; declared because of an unprovoked attack on a military harbour. There was even a real fear that the Japanese would launch an invasion of the west coast at any time.

So, an enterprising dentist from Pennsylvania called Dr Lytle Adams proposed a plan to President Roosevelt that could deliver a crushing blow to the Japanese by getting bats to deliver incendiary devices to the wooden



infrastructure of their cities. He had the idea after a visit to a huge colony of Mexican Free-tailed bats (*Tadarida brasiliensis*) that, even today, reside in Carlsbad Caverns in New Mexico.

It may have helped Dr Adams's case somewhat that the President's wife was a personal friend of his and after a Presidential letter was sent to the War Department, which stated that this dentist was "not a nut", Dr Adams soon had Project X-Ray underway. He enlisted the help of Jack Couffer, who later wrote a book about the whole project called "Bat Bomb: World War II's other secret weapon", as well as a Dr Fieser who was better known for the invention of napalm.

The project began when, accompanied by a Harvard zoologist, Dr Adams returned to the Caverns to net some five hundred bats that would be taken in refrigerated containers back to Harvard University. Unfortunately only three hundred survived the journey. The following experiments showed that the bats could be kept torpid for up to a fortnight at temperatures of around 10 Centigrade, which boded well for their travel to the release site, but they could only carry 3 to 5 grammes of extra weight. Later tests would show that the bats were in fact capable of carrying loads of 15 to 18 grammes and so small cases containing napalm gel were designed by Dr Fieser together with a 15-hour timer. The tiny incendiary devices were attached to the bats' loose chest skin by a surgical clip and a string.

The logistics of the attack were that the torpid bats would be transported by aircraft at night to the drop point in special cases, each containing around 180 bats. Then the cases, which were designed to descend slowly giving the bats time to awaken, were dropped over the target. The bats would fly off and roost in crevices in the timbered houses and factories of the fated Japanese city. The string would allow the bats to remove the bombs by chewing through it. Some 15 hours later thousands upon thousands of small fires would spontaneously start and the city would be engulfed by fire.

Well, that was the theory but in practice the earlier trials were a total

failure. The bats were tricky to handle and difficult to persuade to enter torpor. Dr Adam's containers didn't produce enough drag to slow their descent and many bats suffered serious or fatal injuries. Those that did manage to make a break for freedom found they could barely fly with the weight of some of the heavier 22-gramme bombs. Just to add insult to injury, some of the bats with live bombs on board were set free from the ground and ended up setting fire to nearby buildings as well as a general's car!

Surprisingly though, the trials continued, with supervision passing from the army and air force to the navy and finally the marines. Full scale tests were planned for August 1944 but then, suddenly, the \$2 million project was axed when a Fleet Admiral found out that the first feasible deployment date would not be until 1945. It is perhaps no coincidence that this same year (1945) saw the detonation of three atomic bombs; two of which would decimate the Japanese cities of Hiroshima and Nagasaki. Obviously the bats just could not compete with nuclear weaponry.

The Mexican Free-tailed bats that Dr Adams forcibly conscripted for the project were well suited for the task. They are extremely good fliers with long narrow wings, pointed wingtips, and long hairs on their toes to measure air speed and turbulence. Reaching speeds of 60mph (with a tail wind!) in open areas and heights of 10,000 feet, they can migrate long distances between their summer and winter roosts. Their agility in the air is also matched on solid surfaces as their short powerful legs make them good climbers. Their Achilles heel as a species, so to speak, is that their maternity roosts are huge (in the millions) and are concentrated in relatively few sites making them very vulnerable to disturbance. The latter part of their scientific name, *brasiliensis*, hints at one of the other names that they are known by – the Brazilian Free-tailed bat. They also go by the name the House bat or the Guano bat. The 'Free-tailed' part of their common name comes from the fact that they have a tail that protrudes past their tail membrane.

MONITORING GUANO BAT POPULATIONS IN THAILAND

In October 2005 I was fortunate enough to spend five weeks in Thailand as part of a three year study funded by a Darwin Initiative Grant awarded to the University of Aberdeen. The aim of the project is to set up a monitoring scheme and conservation stewardship programme for the wrinkle-lipped bat (*Tadarida plicata*) in South East Asia. Wrinkle-lipped bats are

an insect-eating, cave dwelling species, normally roosting in very large colonies of up to several million bats. They are found throughout S E Asia, and the caves they inhabit often become economically important to the local community, as the bat droppings (guano) are collected and used as agricultural fertiliser. The countries involved are Myanmar, Cambodia, Vietnam, Thailand and Laos. Our brief on this first visit was to make a preliminary survey and devise methods for determining population sizes and habitat use.

After an exciting conference at Prince of Songla University in southern Thailand, meeting specialists from across SE Asia, we made our way north to a cave at Khao Chong Phran within the karst area of Ratchaburi province. The cave has been a tourist attraction for many years due to the large numbers of wrinkle-lipped bats that emerge at sunset. It has been estimated that the cave contains 2.6 million individuals.

We arrived at the cave mouth just over an hour before sunset to set up our infra-red video equipment, and already thousands of bats were swarming just inside the entrance; the heat and noise was incredible. Half an hour before sunset, when it was still light, bats began to emerge in a long, thin, smoke-like column that snaked its way over the watching crowd, between the towers of the temples, and away across the rice fields. Almost immediately Eurasian kestrels, Japanese Sparrowhawks, and Shikras began picking off the stragglers.

However, these attacks had little effect on the constant stream of bats that continued to fly on into the distance. We were told that the bats travel just above



tree height in this tight formation for approximately 2 km before rising higher and spreading out into the night sky. Two hours later they were still emerging, but a large group of bats had started returning, dropping almost vertically at speed from a great height into a separate entrance in the top of the hill. It was at this point we realised that our camera film had long run out and we returned to the hotel for some celebratory drinks and also to try and work out how on earth we were going to count all those bats!

Guano has been collected every

Saturday at this cave for many years. The morning after we had watched the bats returning, we were invited by the monks who own and manage the cave to accompany the guano collectors. In the first small cave we saw clusters of sac-winged bats (*Taphozous* spp.) and leaf-nosed bats (*Hipposideros larvatus*) clinging to the roof. Scrambling over the rocks, which were crawling with beetles, we could see ahead the guano collectors working in the flickering light of their candles; cloths over their faces to mask the overpowering smell of ammonia. Above them was a vast circling cloud of bats. It was at this point that I learnt the value of wearing a hat – an item I had forgotten! The guano collectors work in these conditions for about six hours, scraping guano from the rocks into rough sacks and hauling them out to the cave entrance. For their efforts the monks pay them 20 Thai Baht (THB), the equivalent of £0.25 per sack. These are then bought by farmers, who wait around the cave entrance, for about 140 THB (£1.75 a sack). Not a bad profit for the monks who never even enter the cave!

At the cave entrance, as I scraped the fresh guano out of my hair and dried off as best I could, we chatted to the monks as they packed away their accounts books. They informed us that there was no formal monitoring programme in place in the cave but that they had kept records of the quantity of guano collected for the past thirty years. These records showed that guano weight had decreased by 10% in the last six years and the monks were concerned that this may indicate that numbers of bats had been declining. Khao Chong Phran cave is strictly guarded by the monks who employ security guards to protect the upper cave entrance and keep the lower cave entrance doors firmly locked (something three of our party experienced for half an hour after the guano collectors had gone home). This is an exceptional situation in Thailand where most of the caves have no protection at all.

After the visit to Khao Chong Phran I visited a number of caves in the provinces of Nakhon Sawan and Nakhon Ratchasima in north-east Thailand and also Phetchaburi in upper southern Thailand. None of the caves contained as many individuals as the cave in Khao Chong Phran, but each was still spectacular in its own right. All of them were visited on a regular basis by guano collectors and I managed to meet quite a few of them. None of these caves had a monitoring programme in place to determine whether populations of guano-bats are remaining stable, and often there was no person controlling entrance to the cave. It was at one of these caves at Cha'am that I learnt that if you want to

climb up a steep rocky hill to video emerging bats on your own it's a good idea to bring a torch with you for the descent. It was a bit embarrassing to eventually arrive at the bottom, bruised and muddy, to discover that a large search party of locals had been gathering at the base of the hill!

The project is ongoing and my next visit to Thailand is in spring 2007 in order to test our methods of counting bats and also to assist some of the Thai researchers to further knowledge of these fascinating animals.

BOOK REVIEW

Ecological Consequences of Artificial Night Lighting

The beautiful cover of this book brings home just what it is that we give up when we flood the night with artificial light. Astronomers have been increasingly vocal about their loss of dark sky to light pollution, but what are the ecological consequences of artificial light for organisms that have evolved with natural patterns of light and dark?

Catherine Rich and Travis Longcore became so intrigued by this question that they organised an international conference on the topic, held at UCLA in February 2002. They tracked down and invited specialists from a diversity of fields, many of whom have contributed to this book. Therefore, it addresses a single theme, but considers the implications of artificial night lighting for a wide range of organisms.

Following an introduction by the editors, the book's fifteen chapters are divided into six parts on the basis of taxonomy: mammals, birds, reptiles and amphibians, fishes, invertebrates and plants. Research in some of these areas has been quite sparse, but much of the news is bad. It has been recognised for a long time that the migration of many birds and insects can be disrupted by night lighting, with birds particularly susceptible to the siren's lure of lights on tall structures such as communications masts and light houses. Thoughts on mitigating practices are a welcome element in most of the chapters. It is well known that newly hatched sea turtles can be disorientated by lighting, resulting in abnormally high mortality rates. In his chapter on this topic Michael Salmon explains the nature of the problem but then goes on to explore and evaluate means for avoiding or reducing the problem, such as the use of lighting embedded in road surfaces where they pass near nesting beaches.

For some groups, night lighting proves a mixed blessing. Female Tügara frogs (*Physalaemus pustulosus*) spend less time selecting a mate when an area is

illuminated, which is probably a bad thing, but many species of frog have been found to forage on the rich pickings beneath street lamps. Some species of bat also preferentially hunt around those lamps that attract insects, which may benefit the bats, but is not such good news for the insects. Reading this book one cannot help but feel that it is the insects that are most severely affected by lighting that draws many species in to an exhausted death or the jaws of a predator. James E.Lloyd's chapter is devoted to insects that use bioluminescence to find a mate and of all the species in the book they are the ones that leave the reader with the greatest sense of injustice: they "invented" night lighting and now face severe declines in population because they cannot compete with our outpourings.

Most of the twenty five authors are professional ecologists and academics from North America, but their topics are of global significance. The chapters are rich in detail and draw on a wide spectrum of innovative research and case studies of attempts to mitigate the effects of artificial night lighting. There is a good range of informative diagrams, tables and black and white photographs to illustrate the chapters and each has its own list of cited literature that would be an invaluable reference source for anyone seeking further information or considering research in this relatively neglected field. As the editors point out, our own diurnal habits have favoured ecological research in the daylight and it takes a special level of motivation and commitment to take on the night shift.

This is a book with a mission and a soul. At the front of each part is an extract of prose from a variety of authors that make us remember that nights are meant to be dark, beautiful and exciting. It is an academic book, but one that is generally well written and it will be of interest to anyone with an interest in ecology.

C.Rich, T.Longcore (Eds.); Island Press, Washington, 2006, 458 pages. ISBN 1 55963 128 7 (hbk) £51.15, ISBN 1 55963 129 5 (pbk) £23.65

Paul Elliott, Institute of Education, University of Warwick

BAT SURVEY GUIDELINES - CONSULTATION

Work is ongoing to produce a set of guidelines for bat surveys for use by ecologists, developers and nature conservationists.

Editorial Board: An Editorial Board comprising representatives of the Association of Local Government Ecologists, the Institute of Ecology and

Environmental Management and the Statutory Nature Conservation Organisations has been formed to take forward the final stages of the guidelines' production.

Consultation process: A consultation draft is now available to download from: <http://www.bats.org.uk/biodiversity/BatSurveyGuidelines.asp> together with a consultation response form

The consultation will run for one month and will close on Wednesday, 7th March at 9am.

BATTY VITAL STATISTICS!

Don't forget to pass on all your bat sightings to George Burton, Warks Bat Group's Records Officer. Included with this newsletter is a copy of a recording form. Send your records to:

Roost Records, Melrose, North Street, Marton, Rugby, Warks, CV23 9RJ
records@warksbats.co.uk

If you have access to the internet then you can enter the information directly at the Warwickshire Batgroup's website <http://www.warksbats.co.uk>

Click on the 'record entry form' link in the menu on the left hand side of the page.

THE 'E'- CHO

If you would like to receive an electronic copy of the newsletter via email then let me know.....

newsletter@warksbats.co.uk

THE BAT-'E'-GROUP

As well as receiving newsletters electronically, you can also take part in an email discussion group. It's completely free and only open to bat group members so if you have access to email and aren't already on the "egroup", the why not drop an email to me at:

web@warksbats.co.uk and we'll sign you up!

DIARY

If you know of any batty events then please send us the details and then we can include them in the next issue as well as on Warks Bat Group's website: www.warksbats.co.uk

**Let's go Batty!!!
Bedworth Sloughs
Wed, 25 April 2007, 20:30**

Join enthusiasts from Warwickshire Bat Group, and first timers alike, on this dusk and evening meander in search of our little ultrasonic friends! Keep your eyes

peeled! This is one of our most popular events so booking is essential. Please bring a torch if you have one. Meet at Bedworth Sloughs, entrance adjacent to 225 Newtown Road, Bedworth. Organised by Nuneaton and Bedworth Borough Council Natural Environment Team Tel: 024 7637 6053.

**Bat Walk
Charlecote Park (National Trust)
Sat, 28 April 2007, 20:30 - 22:00**

Join us to find out more about these fantastic creatures. Led by John Waller of Warwickshire bat group. Organised by The National Trust, Charlecote Park. Advanced booking essential, contact 0778 865 8495. £3 per person (to be confirmed)

**Bat Walk
Ragley Hall
Friday, 25 May 2007, 19:30**

A presentation on bats in the UK and Ragley, followed by a barbecue and a bat walk around the grounds. There will be an opportunity to see bats emerging from their roost at the start of the walk. Advanced booking essential, Tel: 0800 093 0290, <http://www.ragleyhall.com>. Cost to be confirmed.

**Bat Walk
Charlecote Park (National Trust)
Friday, 01 June 2007, 21:30 - 23:00**

Join us to find out more about these fantastic creatures. Led by John Waller of Warwickshire bat group. Organised by The National Trust, Charlecote Park. Advanced booking essential, contact 0778 865 8495. £3 per person (to be confirmed)

**Bat Night
Kingsbury Water Park
Wednesday, 25 July 2007, 20:30 - 22:30**

Find out about bats. A short talk followed by hot jacket spuds in The Old Barn Coffee Shop, then a walk to detect some bats! Bring a torch. Meet at the Information Centre. Organised by Warwickshire Country Parks. Booking essential: 01827 872660. Cost: (includes food, drinks extra): Adults £5.00, Under 16s £4.50 (costs to be confirmed)

**Bat Walk
Charlecote Park (National Trust)
Saturday, 04 August 2007, 21:00 - 22:30**

Join us to find out more about these fantastic creatures. Led by John Waller of Warwickshire bat group. Organised by The National Trust, Charlecote Park. Advanced booking essential, contact 0778 865 8495. £3 per person (to be confirmed)

**Bat Night
Kingsbury Water Park
Wednesday, 22 August 2007, 20:00 - 22:00**

Find out about bats. A short talk followed

by hot jacket spuds in The Old Barn Coffee Shop, then a walk to detect some bats! Bring a torch. Meet at the Information Centre. Organised by Warwickshire Country Parks. Booking essential: 01827 872660. Cost: (includes food, drinks extra): Adults £5.00, Under 16s £4.50 (costs to be confirmed)

**Lets go Batty!!!
Nuneaton, Windmill Hill Community
Nature Area**

Friday, 24 August 2007, 20:30
Join enthusiasts from Warwickshire Bat Group, and first timers alike, on this dusk and evening meander in search of our little ultrasonic friends! Keep your eyes peeled! This is one of our most popular events so booking is essential. Please bring a torch if you have one. Meet at Bedworth Sloughs, entrance adjacent to 225 Newtown Road, Bedworth. Organised by Nuneaton and Bedworth Borough Council Natural Environment Team 024 7637 6053

**Bat Walk
Ragley Hall
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A presentation on bats in the UK and Ragley, followed by a barbecue and a bat walk around the grounds. There will be an opportunity to see bats emerging from their roost at the start of the walk. Advanced booking essential, Tel: 0800 093 0290, <http://www.ragleyhall.com>. Cost to be confirmed.

**Bat Walk
Charlecote Park (National Trust)
Friday, 07 September 2007, 19:30 - 21:00**

Join us to find out more about these fantastic creatures. Led by John Waller of Warwickshire bat group. Organised by The National Trust, Charlecote Park. Advanced booking essential, contact 0778 865 8495. £3 per person (to be confirmed)

**Bat Walk
Ragley Hall
Friday, 25 May 2007, 19:30**

A presentation on bats in the UK and Ragley, followed by a barbecue and a bat walk around the grounds. There will be an opportunity to see bats emerging from their roost at the start of the walk. Advanced booking essential, Tel: 0800 093 0290, <http://www.ragleyhall.com>. Cost to be confirmed.

The next issue of the Echo is out on 15th May. Deadline for entries is 1st May 2007. If you have any batty stories, anecdotes, interesting articles, research news then please send us the details so we can include them in the next newsletter.