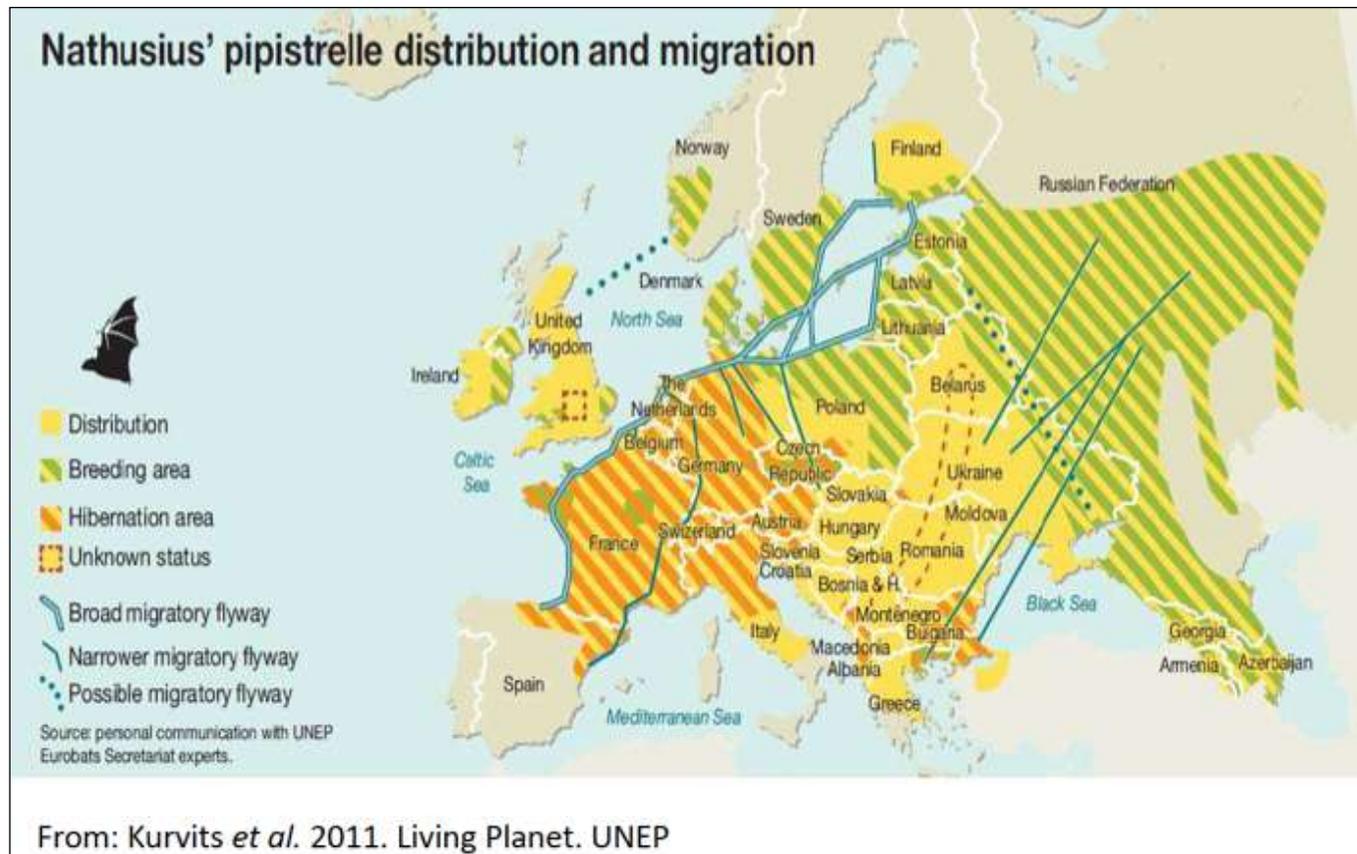


Nathusius' Pipistrelle Project, 2014 to 2016

Nathusius' pipistrelle *Pipistrellus nathusii* occurs across large parts of Europe and is widespread in the UK, but is an uncommon bat species. It was first recorded here in the 1940's but considered a rare migrant winter visitor until the late 1990s, when a small number of mating and maternity colonies were found in Northern Ireland and along the eastern coast of England. Since then, more frequent records have shown peaks of activity for this species in the UK in the autumn and spring, which suggested migratory behavior might occur here as it has been recorded in mainland Europe - see the map below. A small number of other roost sites have also been identified more recently, including a summer roost at Rutland Water and a mating roost at Attenborough Nature Reserve, both in central England.



However, prior to the inclusion of Nathusius' pipistrelle as a target species for the Bat Conservation Trust's (BCT) National Bat Monitoring Programme (NBMP) and the inception of this BCT National Nathusius' Pipistrelle Project (NNPP), detailed information on the distribution, and particularly the breeding status and migration patterns of this species within the UK, was lacking. This 'knowledge-gap' significantly hampers the identification of specific threats to Nathusius' pipistrelle and the implementation of appropriate evidence-based conservation measures for these bats. For example, due to their long-range migration in Europe, 'Nathusius' pips' have been identified as being at high risk of mortality from both onshore and offshore wind farms and have one of the highest recorded mortality rates among species known to be affected by wind turbines. As with many highly mobile species, climate change may also have an impact on the distribution of Nathusius' pipistrelle, and habitat loss and intensive agricultural practices adversely affect all 17 of our resident breeding UK bat species.

For the NNPP, a small number of experienced volunteers from selected bat groups have been highly trained to use 'advanced bat survey techniques' - harp traps, mist nets and acoustic lures - to catch *Nathusius' pipistrelles*, band them using very lightweight forearm rings and collect discreet fur samples for stable isotope analysis by Exeter University, as shown by the photographs below - this project will provide the first attempt to understand the origins of *Nathusius' pipistrelles* through this method. Overall, the findings of this research will improve our knowledge of this unique species, and the likely threats to it, through a better understanding of the provenance of individuals and their migratory patterns. In addition, dedicated bat group volunteers are also trained to assess the sex, age class and breeding status of all non-target bats captured, which provides an invaluable insight into the conservation status of several bat species in a local and regional context, and also provides excellent training opportunities.



The technical lead for the NNPP nationally is Daniel Hargreaves, an internationally renowned bat conservationist. The technical lead and coordinator for Nottinghamshire and Rutland Water is Matt Cook, who is licensed to an advanced level for bat surveying and is an active member of several East Midlands bat conservation groups. The project coordinators for BCT are Dr Katherine Boughey, Monitoring and Science Manager, and Lisa Worledge, Head of Conservation Services.



Photo credits: Lorna Griffiths, Ady Orrell and Matt Cook

Update, November 2016: Nottinghamshire Bat Group (NBG) is very pleased to have now successfully completed the third summer of our involvement with the NNPP, which involves several other bat groups across Great Britain collaborating in an attempt to understand more about the distribution, breeding status and migration habits of the uncommon *Nathusius' pipistrelle*. The table below shows the main results for NBG to date - you may need to zoom in for the detail!

Site	No. of <i>Nathusius'</i>				Total No. of Bats				Species Captured 2014-16				Breeding species (Post-Lactating, Juvenos, Pregnant Females) 2014-16				No. of Surveys				No. of Survey Hours				Ave. Captures per Hour			
	2014	2015	2016	Total	2014	2015	2016	Total	No.	Species	No.	Species	2014	2015	2016	Total	2014	2015	2016	Total	2014	2015	2016	Overall				
Colwick Country Park	2	13	12	27	33	115	30	178	7	P.nat, P.pyg, P.pip, M.dau, M.bra, M.nat, P.aur	3	P.pyg, P.pip, M.dau	3	7	4	14	10.25	30.25	17	57.5	3.10	3.80	1.76	3.10				
Attenborough Nature Reserve	1	10	6	17	42	101	36	179	8	P.nat, P.pyg, P.pip, M.dau, M.mys, M.bra, M.nat, N.noc	5	P.pyg, P.pip, M.dau, M.mys, M.bra	8	4	3	15	31.45	20.75	16.25	68.45	1.30	4.87	2.22	2.62				
Skyfarks Nature Reserve	1	7	4	12	22	22	13	57	7	P.nat, P.pyg, P.pip, M.dau, M.mys, M.bra, M.nat	5	P.pyg, P.pip, M.dau, M.mys, M.bra	4	4	3	11	14.25	13.75	11.5	39.5	1.50	1.60	1.13	1.44				
Gunthorpe Lakes	-	0	2	2	-	44	30	74	8	P.nat, P.pyg, P.pip, M.dau, M.mys, M.bra, M.nat, N.noc	5	P.pyg, P.pip, M.nat, M.mys, M.bra	-	5	2	7	-	13.5	9	22.5	-	3.26	3.33	3.29				
Rufford Country Park	-	0	-	0	-	31	-	31	6	P.pyg, P.pip, M.dau, M.bra, M.mys, P.aur	4	P.pyg, P.pip, M.bra, M.mys	-	1	-	1	-	2	-	2	-	15.50	-	15.50				
Moorgreen Reservoir	0	0	-	0	17	20	-	37	7	P.pyg, P.pip, M.dau, M.mys, M.nat, N.noc, P.aur	3	P.pyg, M.dau, M.mys	2	1	-	3	9.25	4.5	-	13.75	1.80	4.44	-	2.69				
Rutland Water (all sites)	2	11	17	30	79	160	87	326	9	P.nat, P.pyg, P.pip, M.dau, M.mys, M.bra, M.nat, P.aur, N.noc	6	P.pyg, P.pip, M.dau, M.mys, M.bra, M.nat	7	4	5	16	38.25	22.5	22.25	83	2.10	7.11	3.91	3.93				
Hoveringham (all sites)	1	1	-	2	90	5	11	106	9	P.nat, P.pyg, P.pip, M.dau, M.mys, M.bra, M.nat, P.aur, N.lei	5	P.pyg, P.pip, M.dau, M.mys, M.bra	12	1	1	14	35.75	2.75	4	42.5	2.50	1.82	2.75	2.49				
Denton Reservoir (Lincs)	-	0	-	0	-	71	-	71	4	P.pyg, P.pip, M.dau, M.mys	4	P.pyg, P.pip, M.dau, M.mys	-	1	-	1	-	6	-	6	-	11.83	-	11.83				
Norton Big Wood (Thurby Lake)*	-	2	1	3	-	2	3	5	4	P.nat, M.dau, M.bra, P.aur	1	M.bra	-	-	1	1	-	-	3.5	3.5	-	-	0.86	0.86				
Clumber Park	0	-	-	0	19	-	-	19	3	P.pyg, M.dau, M.bra	0	None	3	-	-	3	13.5	-	-	13.5	1.41	-	-	1.41				
Idle Valley Nature Reserve	-	0	-	0	-	17	-	17	6	P.pyg, P.pip, M.dau, M.bra, M.mys, M.nat	2	M.bra, M.mys	-	1	-	1	-	3	-	3	-	5.67	-	5.67				
Girton Lakes	-	7	8	15	-	12	27	39	7	P.nat, P.pyg, P.pip, M.mys, M.bra, M.nat, P.aur	4	P.pyg, M.mys, M.bra, P.aur	-	2	3	5	-	6.25	13.25	19.5	-	1.92	2.04	2.00				
Totals (Notts Only):	5	38	32	75	221	167	147	735									114.45	96.75	71	282.2	1.95	3.79	2.07	2.61				
Totals (All Sites):	7	51	50	108	302	600	237	1139									152.7	125.25	96.75	374.7	1.98	4.79	2.45	3.04				

To summarise, from **2014 to 2016**, our cohort has now successfully fitted the unique biometric rings (as shown in the photos) to, and taken fur samples for stable hydrogen isotope analysis from, **98 individual *Nathusius' pipistrelles*** to contribute to this national research project; **71 of these bats have been caught and processed within Nottinghamshire (all at sites along the River Trent)** with 25 at Rutland Water, which we also survey on behalf of [Leicestershire and Rutland Bat Group](#). Three bats have also been caught and ringed on the border with Lincolnshire during fieldwork for the NBG '[Barbastelle Project](#)'.

In addition to these 98 different *Nathusius' pips* we have also had **10 recaptured bats**, and recaptured animals are an important aspect of the research. With a recapture rate of just over 10%, we consider this a very good return considering these animals can range thousands of kilometres! Of most interest regarding these 10 recaptures was a male *Nathusius'* that was first caught and ringed at Colwick Country Park on 6th August 2015, and later recaptured at Attenborough Nature Reserve on 19th September 2015. This represents a journey of over 10 km sometime within that period, possibly that night, and probably along the River Trent – did this bat regularly make this commute or was it migrating? In addition, we have also recorded three male bats that have either resided at, or returned to, the same sites over two summers, and the remaining six bats have all been males caught at the same site in the same summer, but three months apart. This suggests they've resided there through the season.

Initially, it was some time before we caught a female *Nathusius' pipistrelle* on our cohort of the NNPP. Indeed, our first female was caught in mid-September of 2015, almost two seasons after we started the project. This was at our most easterly site, Girton Lakes, on our first survey visit there. Since then, of the 98 different *Nathusius'*

pipistrelles caught overall, **just 12 have been females** and all 12 have been caught from mid-September to mid-October during the late summer / autumn peak migratory period for this species. These findings here in central England, coupled with those from bat groups undertaking this study along the eastern coast, where a small number of maternity roosts have recently been located, appear to support the hypothesis that any British summer breeding populations of *Nathusius'* pipistrelles are primarily along that coastline. However, we do have an 'early-summer' roost of several *Nathusius'* pipistrelles to monitor at Rutland Water in 2017.....

Last, but certainly not least, we would like to extend a huge you to all of the 84 different volunteers that have assisted with the fieldwork on this project so far, especially those that have attended a number of the 92 surveys completed since May 2014. Without the help of Angelena Eftstathiou (40 surveys), Natasja Groenink (25), Lorna Griffiths (24), Ady Orrell (18), Laura Hammerton (17), Amelia Reddish (16), Anthony McKeown (14), Rick Moulds (14), Steve Sanger (14), Phil Bych (13) and Jenny Harris and Joelle Woolley at Rutland Water in particular, the fieldwork would not have been possible. There are several other people, unfortunately too numerous to mention, that have also attended regularly over the three years. In addition, the project would also not have been possible without the continued support of the NBG committee, particularly Michael Walker (Chair), and the landowners / managers of the survey sites: Nottinghamshire Wildlife Trust, Leicestershire & Rutland Wildlife Trust, Anglian Water, Nottingham City Council, Girton Sailing Club, Trinity Fishing Lakes, The National Trust, Nottinghamshire County Council, and Moorgreen Fisheries. The Heritage Lottery Fund has also provided equipment for the project via our '[Echolocation Location Project](#)' and we are very grateful to BCT and Daniel for facilitating our involvement.

Thank you ☺

Further information on some of the national NNPP results, including ringed bats that were captured in south-east England having migrated to the UK from as far away as Latvia, Lithuania and Holland, can be found by following the BCT links below:

http://www.bats.org.uk/news.php/339/the_lithuanian_bat_that_traveled_a_long_way

http://www.bats.org.uk/news.php/291/on_the_bats_wing_do_i_fly_a_remarkable_journey

http://www.bats.org.uk/news.php/233/tiny_bat_crosses_the_north_sea

In addition, the project received some excellent coverage on national television in 2015:

The One Show: <http://www.bbc.co.uk/programmes/p033ztv6>

Countryfile: <http://www.bbc.co.uk/programmes/b06j8q70>



Nottinghamshire Bat Group, November 2016