

## Northumberland Nathusius' Pipistrelle Project 2011–2015.

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### Pre-2011

Very little was known about the distribution of the Nathusius' pipistrelle *Pipistrellus nathusii* nationally. The closest records to Northumberland were grounded bats on North Sea oil rigs and one grounded Nathusius' pipistrelle from Throphill, near Morpeth, on 25/01/2007.

### 2011

A chance detection of Nathusius' pipistrelle on the River Wansbeck at Ashington in May 2011 and further detections in early June 2011 raised the tantalising possibility that this rare species of bat was resident and breeding in Northumberland. From this the Northumberland Nathusius' Project was formed in late 2011 to continue a community led bat project run by the Bat Conservation Trust (BCT) and Northumberland Bat Group.

Our aim was to encourage members of the public to get involved and to enlist local volunteers to discover where the foraging locations and roost sites of Nathusius' pipistrelle bats were in south east Northumberland. Throughout the bat activity season we organised volunteers to undertake regular bat survey work with the aim of trying to locate Nathusius' pipistrelle roost site(s). The presence of a rare bat species was also an opportunity to promote bats in general with volunteers undertaking public events, talks, leafleting and bat activity surveys.

To achieve this we provided training, support and mentoring to all participants in the project. We provided bat detectors for use by volunteers to enable them to learn how to detect, monitor and identify these rare bats.

### At the end of the 2011 we knew that:

- Nathusius' pipistrelle were present in the coastal areas of Northumberland in every month of the year from May to October 2011.
- Social calling was heard and recorded in August and September suggesting that mating activity was at least being attempted (see Figure 1).
- Nathusius' pipistrelle were present in 19 different 1km grid squares (up to 17km apart) within the coastal area of Northumberland during 2011.
- Nathusius' pipistrelle were present at seven different sites up to 13.5km apart at the same time during co-ordinated surveys in September (see Figure 2).

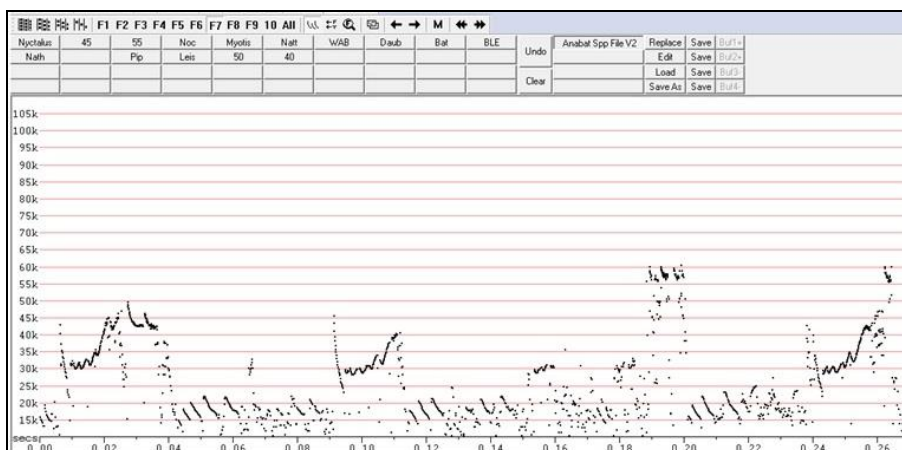


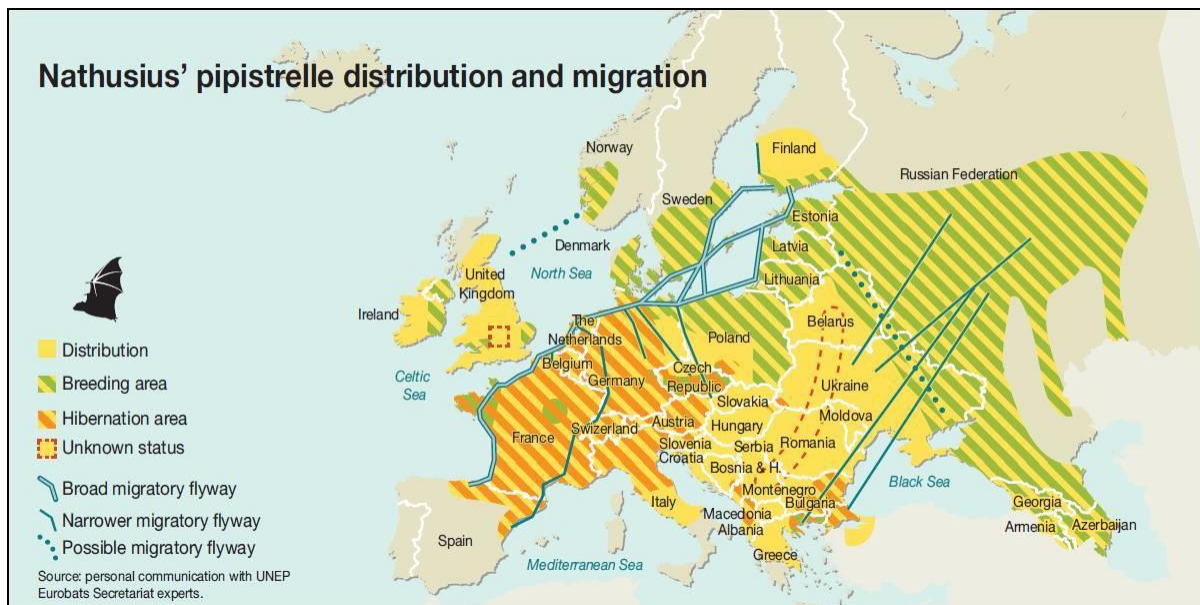
Figure 1 Nathusius' pipistrelle social calling.



**Figure 2 Locations of Nathusius' pipistrelle recorded during co-ordinated surveys.**

On 16/09/2011 a bat was seen flying across the North Sea towards the coast at Newbiggin-by-the-Sea at 8:50am. This bat grounded once it made landfall. The bat was reported via the National Bat Helpline and one of our Nathusius' project volunteers collected the bat, a juvenile male Nathusius' pipistrelle. In Europe Nathusius' pipistrelle are known to be migratory (Kurvits et.al., 2011), moving between summer roosts in the north east to wintering grounds in the south west (see Figure 3).

As this bat was seen to fly in from the sea in prime migration season it strongly suggests that there is a migratory element to the Northumberland population. This bat, found underweight and dehydrated, was successfully rehabilitated and released on the 27<sup>th</sup> September.



**Figure 3 Nathusius' pipistrelle distribution and migration.**

- Identify roost sites as well as roost and habitat preferences, by catching and radio tracking individual bats.
- Find out whether both male and female bats are present in Northumberland.
- Investigate possible migration by ringing all Nathusius' pipistrelle bats caught.
- Look for any seasonal variation in activity through volunteer led monitoring at core sites.
- Further test the geographical distribution of the species in Northumberland by car transect surveys and by activity surveys undertaken by volunteers.

#### **By the end of 2012:**

- 51 volunteers had been involved with the project, contributing more than 235 survey nights.
- No Nathusius' pipistrelle were caught, however we knew that Nathusius' pipistrelle were present in Northumberland from March to October.
- Nathusius' pipistrelle had been recorded from 22 1km squares with a north-south range of 37km.

#### **2013**

In 2013, 31 volunteers took part in a series of co-ordinated surveys throughout the season and, in addition to confirming the ongoing presence of Nathusius' pipistrelle at our core sites, five new sites were identified.

Similar projects in other counties had also been gathering data on the status of the Nathusius' pipistrelle and in August 2013 the first National Nathusius' Bat Conference was held, bringing together all interested parties in the UK. At the end of the conference it was strongly felt that there was a need for a co-ordinated National Nathusius' pipistrelle Project.

#### **2014**

A pilot study was established in 2014 funded by the People's Trust for Endangered Species. The survey methodology focused on catching and ringing bats at large water bodies with previous records of Nathusius' pipistrelle. Using a standard methodology and equipment from the BCT's Bechstein's Bat Project, the aim was to catch the species using harp traps and acoustic lures. If Nathusius' pipistrelle were captured, fur samples would be taken and sent for stable isotope analysis at the University of Exeter in an attempt to understand the origin of the individual animals. In addition the bat would be ringed and biometric measurements also taken.

The project's three main aims were:

- To understand the breeding status of resident Nathusius' pipistrelle in the UK.
- To understand the migratory movements of Nathusius' pipistrelle in and out of the UK.
- To provide new increased field skills to bat workers and groups.

The Northumberland Nathusius' Project was one of five groups invited to take part.

### **Northumberland Nathusius' Project Results**

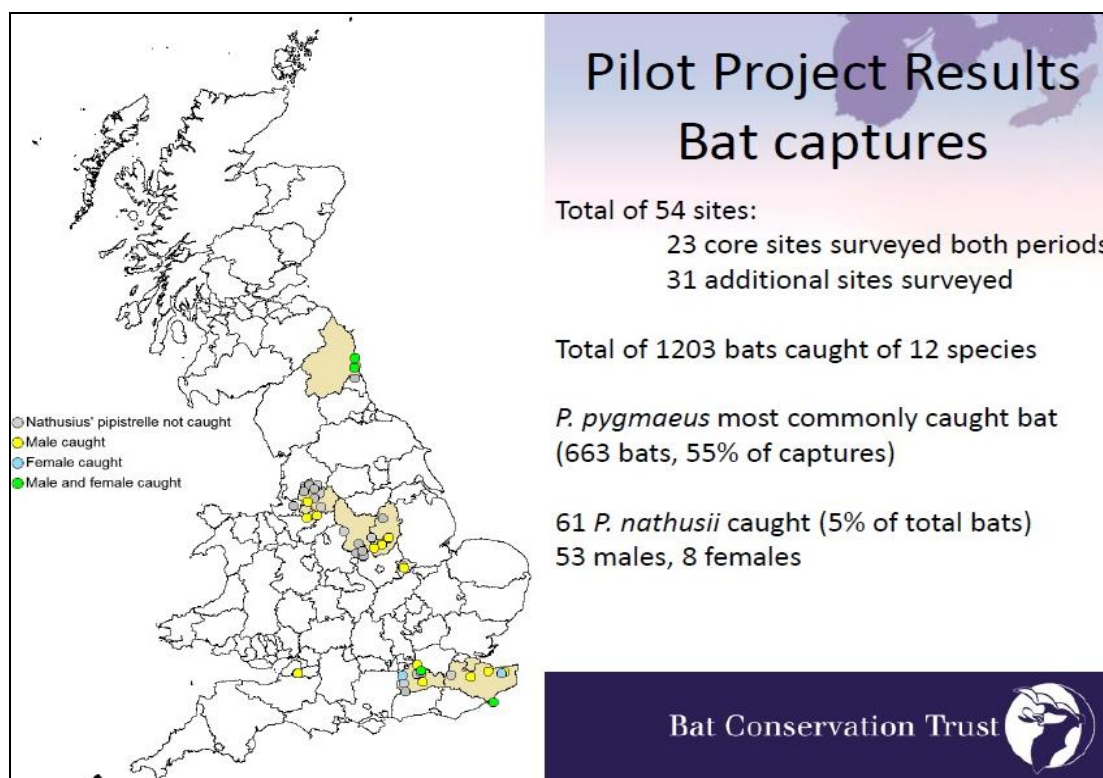
A total of 12 trapping nights were carried out over four sites, 84 bats were caught of which ten were Nathusius' pipistrelle. These were caught at two of our four selected sites.

Of the ten Nathusius' pipistrelle caught three were adult males and seven were juveniles, four males and three females.

Once a bat was caught it was identified and detailed biometrics taken. The species, sex and age of the bat were recorded; additionally forearm length, weight and reproductive status were noted. All Nathusius' pipistrelle were ringed, on the right forearm for males and left forearm for females, with individually numbered rings as supplied by the Bat Conservation Trust. Fur clippings were taken, under licence, from common pipistrelle *P. pipistrellus*, soprano pipistrelle *P. pygmaeus* and Nathusius' pipistrelle to allow for stable isotope analysis to be carried out. Dropping samples from Nathusius' pipistrelle were also taken, if they obliged, to allow DNA analysis for species confirmation.

Northumberland was the only county where juvenile Nathusius' pipistrelle were caught in 2014.

The results of the National Nathusius' Pilot Project are summarised below in Figure 4.



**Figure 4 Results of the National Nathusius' Pilot Project.**

## 2015

The National Nathusius' Pilot Project continued in 2015 with a further three groups involved.



In Northumberland, the decision was made to concentrate on the two sites where *Nathusius' pipistrelle* were caught in 2014. The aim was to catch post-lactating female *Nathusius' pipistrelle*, fit radio tags and track them to their roost sites.



**Site 1 Druridge Bay Country Park (Ladyburn Lake).**



**Site 2 River Wansbeck Country Park.**

### **Results**

May was the first month of the year that we were actually able to get out to the sites because of the incredibly cold conditions in April and we managed to squeeze in two trapping nights. Four *Nathusius' pipistrelle* were caught on 30/05/2015 at Ladyburn Lake, Druridge Bay Country Park.

These were two males and two pregnant females. One of the females was a whopping 10.5g, she felt and looked heavily pregnant, the other just 7.1g. Unfortunately, we were not set up to track at that point so we could only take biometrics and fur samples and put rings on.

On 07/08/2015 two Nathusius' pipistrelle were caught at the Druridge Bay site, a male and a post lactating female.

I had (rather hurriedly and with the fantastic help of other batty colleagues around the country) got organised for tracking so we fitted a radio tag to the female and a team was allocated to track her, they didn't have to go far as she foraged over Ladyburn Lake for the whole night.



Nathusius' pipistrelle with radio tracking tag fitted

At dawn, we tracked her leaving the lake and picked up her signal about 1.5km south west of the lake. We located the building that she was in, a single storey barn conversion on the edge of Red Row village.

We returned that evening, 08/08/2015, to watch her emerge, rather later than we had expected, at 10.36pm and without echolocating. She was tracked east towards the pools at East Chevington, she was picked up again at Ladyburn Lake where she continued to forage around the lake all night. At dawn she returned to the same roost site in Red Row.

On 09/09/2015 a male advertisement call was heard from the same roosting position as the female. An advertisement call is considered to be an element in mate attraction. Social calls were heard and recorded as well. The tagged bat left the roost at 9.46pm briefly, and then returned to the roost! She finally left the roost at 10.06pm (again no echolocation); no other bats were seen to emerge from the building, although flight calls were recorded. Every night she emerged from the roost at varying times, the earliest was at 9.10pm.

On 12/08/2015 she left and returned three times in quick succession before heading off to Ladyburn Lake to forage. Male advertising calls were recorded on several nights whilst waiting for the tagged female to emerge. This pattern of behaviour continued for 13 nights and she returned to the same roost site except for one dawn where she returned to a different roost site in a stone building approximately 50m distance from the original roost.

The roost owner has been very accommodating and allowed us to inspect the roof void, a dead juvenile *Pipistrellus* species bat was retrieved and is awaiting DNA analysis.

On 08/08/2015 two more Nathusius' pipistrelle were caught at the Druridge Bay site, again a male and a post lactating female.

Another radio tag was fitted to the female and, again, not much tracking was required as she also foraged around the lake all night! At dawn she left and headed north east. Off we went - it took us a while to find her but eventually picked up the signal in a building on the coast in Hauxley Village, a little over 2km from the lake. We went back that evening; at 9.30pm a male Nathusius' pipistrelle was heard advertising for several minutes, then two bats left the roost site, a flat roof on a large dormer window. The tagged female had not left as the tag was still audible, a male was still advertising, the tagged female then left the roost (no echolocation) and was not seen. Additional Nathusius' pipistrelles arrived and flitted around the building and the access point then all left. The tagged bat was picked up briefly foraging over water bodies at Low Hauxley Nature Reserve and then went again to Ladyburn Lake at the Country Park. This bat also returned to the original roost site at dawn.

On 09/08/2015 at 9.32pm two bats were seen emerging from the flat roof, a male advertisement call was heard very loudly. Our tagged female was still in the roost at this point. At 9.36pm the tagged female left and headed south, other Nathusius' pipistrelles arrived and repeatedly flew up to the roost access point. This tagged bat was also tracked to Ladyburn Lake where she foraged on many of the nights between 8<sup>th</sup> August and 14<sup>th</sup> August. At 4.41am on 15/08/2015 she left Ladyburn Lake, flying in the direction of her usual roost in Hauxley. Later on that day, the roost site was checked to see if she had returned but no signal was detected. We checked the roost site daily for several more days and also checked her known foraging sites for several nights but with no luck.

It was agreed that it was unlikely that she had left the area as it was quite light on the morning of 15<sup>th</sup> August when she left Ladyburn Lake so there was insufficient time for her to find an alternative roost further away. It was concluded that the tag had failed after only eight days, which was earlier than expected.

### **Additional Site**

One of our project team, who was involved with a development as part of his work, called me at the end of August to say it was suspected there were Nathusius' pipistrelle roosting in a building that they were surveying. He had been at the trapping nights when we had caught Nathusius' pipistrelle and had handled them so was confident that he had seen Nathusius' pipistrelle on the site. They were then caught to confirm identification, during which droppings were taken for DNA purposes.

One of the bats caught on 25/08/2015 was a female Nathusius' pipistrelle trapped and ringed as a juvenile on 15/08/2014 at the River Wansbeck.



**A cluster of bats within the site.**

### **Possible Migration**

Nathusius' pipistrelle are known to be migratory within Europe, however there is much less information about Nathusius' pipistrelle moving into or out of the UK. In 2011 a juvenile male Nathusius' pipistrelle was seen to fly in from the sea at 8:50am on 16/09/2011. On 14/09/2015 a parous female Nathusius' pipistrelle came into care from the village of Belford in north



Northumberland. The bat was underweight but otherwise uninjured. She was ringed, tested for flight capability and released a few days later, where she was found. This bat was an adult, it is possible that she had newly arrived in the UK.

Two ringed Nathusius' pipistrelle are known to have moved between the UK and the continent. On 23/12/2013 a ringed Nathusius' pipistrelle was found in Franekeradeel, Holland, this bat had been caught and ringed at Bladgon Lake in Somerset on 14/10/2012.



### Reporting of Nathusius' pipistrelle found in Holland, via Facebook.

On 10/10/2015 a ringed Nathusius' pipistrelle was caught in Rye Harbour, East Sussex. This bat had been ringed by a research team in Latvia on 20<sup>th</sup> August. This bat had travelled at least 1458km in just 50 days, an amazing journey for such a small bat.

### Future plans

This is an ongoing project and plans are being put in place for further trapping and tracking during 2016.

### Acknowledgements

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### References

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