

Feeder Pipe Bridge

BAT SURVEY REPORT

August 2021



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**Feeder Pipe Bridge
 Bat Survey Report**

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**ISSUE
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Appendix B Feeder Pipe Bat Return to Roost Survey 16th June 2021

Non-Technical Summary

Site Location	Feeder Pipe Bridge, Abercynon (Central Grid Reference: ST 09099 95362).
Proposed Development	The proposed works are to construct a new bridge at or near to the location of the previous bridge crossing.
Purpose of survey/s	To identify any constraints associated with bats to the proposed works.
Dates of survey and names of surveyors	28th September 2020 – Janine Burnham ACIEEM (Principal Ecologist), Trevor Fletcher (Ecologist), Emma Carney (Ecologist), Rebecca Howells (Graduate Ecologist); 16th June 2021 - Janine Burnham ACIEEM (Principal Ecologist), Richard Poole PIEMA (Senior Ecologist), Olga Krylova MCIEEM (Senior Ecologist), Megan Watts (Assistant Ecologist).
Overview of Results	- No bats were recorded roosting within the structure or associated abutments and retaining walls. - At least five bat species were recorded at the site (soprano pipistrelle, common pipistrelle, Daubenton's bat, Myotis species (possibly whiskered bat) and brown long-eared bat. - The majority of the bats recorded were soprano pipistrelle and are likely to be roosting in residential properties to the west of the site. - Bats were recorded foraging up and down the river corridor and passing underneath the structure.
Recommendations	- No further bat surveys are required, however, should the works not commence within 2 years of the date of these surveys, update surveys will be required. - In the unlikely event that bats are found during the proposed works, all work should cease immediately until a suitably qualified ecologist has been consulted for advice. - Night working should be avoided to avoid disturbing foraging and commuting bats. If additional lighting is required to meet health and safety requirements a suitably qualified ecologist should be consulted. - The river corridor should be left unobstructed at night to allow an unhindered flight path for bats. - A suitably experienced ecologist should deliver an ecological toolbox talk to all site personnel immediately prior to commencement of works.
Enhancements	Three 'summer roost' crevice bat boxes could be installed, under guidance of an ecologist, on mature trees within the adjacent woodland.

- At least three bird boxes for small passerines such as blue tit could be installed within the woodland adjacent to the river.

1. Introduction

Redstart was commissioned by Rhondda Cynon Taf County Borough Council (RCTCBC) to carry bat surveys for proposed remedial works to Feeder Pipe Bridge, Abercynon, Rhondda Cynon Taf (Central Grid Reference: ST 09099 95362).

The surveys were carried out to identify presence / absence of bats within the bridge and associated structures, such as the abutments and retaining walls, to determine any ecological constraints to the proposed development. This report includes details of the survey methodologies, results and discussion and contains recommendations for further survey/mitigation where appropriate.

1.1 Site Description

Feeder Pipe Bridge spanned the River Taff above three iron pipes, approximately 1 km north-east of Abercynon town centre, Rhondda Cynon Taf. The site lies between two road bridge crossings carrying the A472 to the north and A470 to the south-west.

Land use in the surrounding area was predominantly agricultural with scattered farmsteads and residential dwellings.

The site location is illustrated in Figure 1 and hereafter referred to as 'the site'.

Figure 1 - Location of Feeder Pipe Bridge (red rectangle-not to scale). Adapted from Google Earth. (Google Earth, 2021).



1.2 Proposed Works

The proposed works are to construct a new bridge at or near to the location of the previous bridge crossing (Feeder Pipe Bridge) which was dismantled and removed from site during September and October 2020. The bridge had been assessed as being irreparably damaged during storm flood events in the winter of 2020. The previous bridge was supported on existing stone piers and abutments, carrying three redundant ironwork pipes, which remain in place across the river (referred to as the 'structure' in this report). Options for design and siting of the bridge are currently under consideration.

Works to include:

- Construction of a new bridge crossing;
- Repair to existing abutments;
- Possible removal of one of the feeder pipes;
- Scour repair; and
- Linking works to provide public access.

2. Legislation

All species of bats and their roosts are strictly protected by a range of legislation, including the following:

2.1 Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

All bats found in the UK are European Protected Species (EPS) being protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, known as the 'Habitats Regulations'.

Under the Habitats Regulations, it is an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS;
- Deliberately disturb wild animals of any such species; and
- Damage or destroy a breeding site or resting place of such an animal.

Disturbance is defined as that which is likely:

1. To impair the animal's ability:
 - to survive, to breed or reproduce, or to rear or nurture their young, or
 - in the case of animals of a hibernating or migratory species (e.g. bats), to hibernate or migrate; or
2. To affect significantly the local distribution or abundance of the species to which they belong.

Other offences also exist relating to possession, transport and sale.

2.2 Wildlife and Countryside Act 1981

In addition, bats are partially protected in Wales under Section 9 of the Wildlife and Countryside Act 2018 (as amended), which adds the following offences (with certain exceptions):

- Disturbance while it is occupying a structure or place which it uses for shelter or protection; or
- Obstructing access to any structure or place used for shelter or protection.

2.3 Environment (Wales) Act 2016

Section 7 of the Environment (Wales) Act has replaced the Section 42 of the NERC Act 2006 in Wales. Section 7 lists the living organisms and types of habitat in Wales which are considered to be of key significance to sustain and improve biodiversity in relation to Wales.

3. Methodology

3.1 Bat Emergence/Return to Roost Surveys

One dusk emergence survey and one dawn return to roost survey were carried out on site. The dusk survey commenced at least 15 minutes before sunset and continued for at least an hour and a half after sunset. The dawn survey commenced an hour and a half prior to sunrise and ended 15 minutes after sunrise.

The survey methods were based on Bat Conservation Trust Good Practice Guidelines (Collins, 2016).

The survey date and times are shown in Table 1.

Table 1 – Survey dates and times

Survey Number	Date	Survey Type	Sunset /sunrise time	Start time	End time
1	28 th September 2020	Emergence	18:56	18:41	20:26
2	16 th June 2021	Return to roost	4:55	03:25	05:10

Four surveyors carried each survey, two surveyors were positioned at either side of the structure, one upstream and one downstream of the structure (surveyor locations shown on Figure 2) to ensure that all potential bat emergence points could be seen. Each surveyor carried an SSF Bat2 or Pettersson D240 handheld bat detector. In addition, an Anabat Express bat detector was located at each survey location to record bat echolocation calls for the duration of the surveys. Bat species were confirmed by computer analysis of echolocation calls with reference made to Russ (2012).

Weather conditions at the time of the survey were optimal for bat activity during the dawn return to roost survey i.e. no rain and temperatures higher than 10° C, however there was light precipitation during the dusk emergence survey.

Figure 2 – Location of bat surveyors (yellow circle indicates surveyor location) adapted from Google Earth (2021)



3.2 Survey constraints

There was light precipitation during the dusk survey on 28th September 2020, getting heavier towards the end of the survey at approximately 20:05, however bats had been active throughout the duration of the survey and after this time, so it is not considered to have had any impact on the survey results.

Low light levels of light can restrict observations of bats meaning that flight patterns cannot be determined, or animals cannot be seen by surveyors. Surveyors therefore may record bats as 'heard but not seen' as flight pattern and direction cannot be determined.

Each bat species differs in its likelihood of detectability, repetition rate and call intensity. Additionally, there is also variation in the sensitivity of different models of bat detectors to different bat calls and this variation should ideally be taken into account when using particular bat detectors.

For example, bats with calls at a low frequency and/or high amplitude, such as noctule bats, can be detected over greater distances whereas species such as brown long-eared bat and barbastelle that use low amplitude calls, or horseshoe bats that use high frequency calls are more difficult to detect. *Myotis* species calls often overlap depending on the type of habitat they are recorded in. This makes it difficult to identify *Myotis* bats to species level, therefore often they are recorded as '*Myotis* species'.

Any ecological survey can only identify what was present on site at the time it was conducted and habitat usage by species can change over time. The length of time that the survey data remains valid will depend on a case-by-case basis but it generally it is considered that if the works do not begin within 2 years of the date of this report an update may be required.

4. Results

The results of the surveys are summarised below. Full survey details are provided in Appendix A.

No bats were recorded emerging from or returning to roost sites in the pipework at the location of the dismantled bridge or associated abutments or retaining walls during the surveys.

Survey 1 - Emergence

The bat activity on the site comprised predominantly soprano pipistrelles (*Pipistrellus pygmaeus*), which were observed and recorded foraging and commuting along the river corridor, underneath the structure and above the riparian habitat from 19:06 until approximately 20:05 when activity levels dropped – possibly attributable to the precipitation levels increasing.

Daubenton's bats (*Myotis daubentonii*) were also active during the survey, foraging up- and downstream from approximately 19:20 and were recorded at the site until 20:05.

In addition, a noctule bat (*Nyctalus noctula*) was recorded at the beginning of the survey, foraging high above the riparian vegetation at 19:52.

Survey recording sheets for this survey are provided in Appendix A.

Survey 2 – Return to roost

Soprano pipistrelles were recorded foraging and commuting up and down the river channel, underneath and over the structure and around the associated habitats throughout the survey; the last bat activity recorded was a soprano pipistrelle at 04:37.

Daubenton's bat was heard but not seen, between 03:20 and 03:25 and again at 03:40. One pass by a *Myotis* species, for which the characters of the sonogram were most similar to whiskered bat (*Myotis mystacinus*) was recorded at 03:27, followed by a recording of a brown long-eared bat (*Plecotus auritus*) at 03:15 and 03:28.

Survey recording sheets for this survey are provided in Appendix B.

5. Discussion and Conclusions

No bats were recorded roosting within the structure or adjacent walls during either of the surveys and therefore no direct impacts to roosting bats are anticipated as a result of the proposed works.

Pipistrelle species are early emerging bats, typically leaving their roost around 20 minutes after sunset. When conditions are suitable, they will emerge earlier. The timing of the observations and recordings of soprano pipistrelles suggests that this species is roosting nearby, most likely in the nearby residential properties to the west of the site.

The habitats on site (trees and river) were found to support low numbers of foraging soprano and common pipistrelle, Daubenton's, *Myotis* species and brown long-eared bats.

Recommendations for how to proceed to ensure that the works are compliant with relevant legislation relating to bats is detailed in Section 6.

6. Recommendations

6.1 Proposed works and timings

No further bat surveys are required, however, should works not commence within 2 years of the date of these surveys, update surveys will be required.

In the unlikely event that bats are found during the proposed works, all work should cease immediately until a suitably qualified ecologist has been consulted for advice.

6.2 Lighting

Night working should be avoided. If additional lighting is required to meet health and safety requirements light sources would need to be directional and positioned to avoid disturbance to commuting and foraging bats as well as the river channel. Further advice, if lighting is required to facilitate the works, should be sought from a suitably qualified ecologist.

In addition, the river corridor should be left unobstructed at night to allow an unhindered flight path for bats.

6.3 Toolbox Talk

A suitably experienced ecologist should provide an ecological toolbox talk to all site personnel immediately prior to commencement of works. Advice will be given as to how to identify a roosting bat and highlight the potential roost sites within the structure for bat roost and outline the appropriate action to be taken in the unlikely event that a bat is encountered.

7. Enhancements

Local Authorities have a duty under the Planning Policy Wales Edition 11 (Welsh Government, 2021) and Environment (Wales) Act 2016 to maintain and enhance biodiversity in the exercise of their functions. The following measures are suggested.

Bat boxes - Three 'summer roost' crevice bat boxes could be installed, under guidance of an ecologist, on mature trees within the adjacent woodland. These should be positioned facing north, south-east and **south**-west to give a range of temperatures throughout the season. A recommended make and model is Treble or Double Crevice; NHBS reference #187784/#187782; available at: <https://www.nhbs.com/improvedcrevice-bat-box>.

Small passerine bird boxes - At least three bird boxes for small passerines such as blue tit could be installed, under guidance of an ecologist, approximately 4 m high within the woodland adjacent to the river. These should be installed facing between a northerly and eastern direction. A recommended make and model for installation is Apex Bird Box 28 mm entrance hole; NHBS reference #233975; available at: <https://www.nhbs.com/apex-bird-box>.

References

Collins, J. (ed.), (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed.), The Bat Conservation Trust, London.

Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

Environment (Wales) Act (2016).

Mitchell-Jones AJ and McLeish AP (2004) The Bat Workers' Manual 3rd Ed., JNCC, Peterborough.

Rhondda Cynon Taf County Borough Council (RCTCBC, 2018). Principal Bridge Inspection Report – Nant Clydach Bridge.

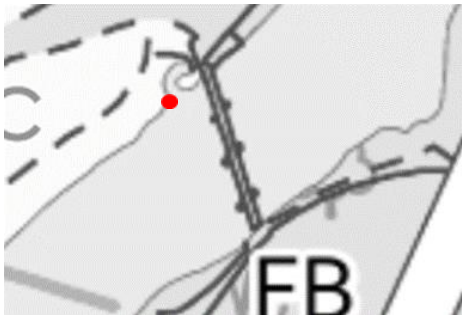
Welsh Government (2021). Planning Policy Wales. Edition 11. [Online]. [Accessed: March 2021]. Available at: <http://www.gov.uk>

Wildlife and Countryside Act (1981). (as amended).

Appendix A

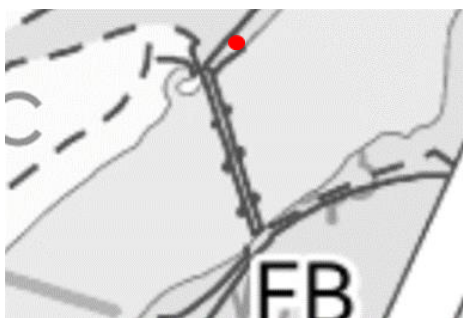
Feeder Pipe Bat Emergence Survey

28th September 2020

Project:	Feeder Pipe Bridge		
Surveyor:	Janine Burnham		
Date:	28 th September 2020		
Feature/s being surveyed:	Bridge and associated structures		
Time Start:	18:41	Time Finish:	20:26
Sunrise/sunset time:	18:56	Detectors used:	Anabat Express, SSF Bat2
Temperature Start (°C):	14	Temperature Finish (°C):	11
Cloud Cover Start (%):	80	Cloud Cover Finish (%):	90
Humidity Start (%)	80	Humidity Finish (%)	98
Wind Start:	0	Wind Finish:	0
Precipitation:	Light drizzle, getting heavier approx. 20:05		
Land Use:	River		
Surrounding Land Use:	Riparian woodland, wooded gorge & river		
Surveyor location	 		
Time	Species	Activity and Direction	
19:06	Ppy	Seen foraging up and down river corridor, passing under structure	
	Ppy	Constant foraging and commuting by Ppy throughout survey along river corridor and adjacent woodland habitat	

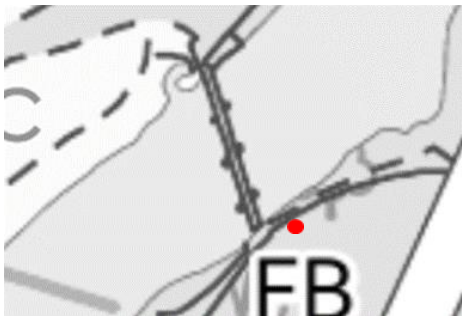
19:43	Mdau	HNS
19:57		No activity
20:26		End of survey – no activity

Project:	Feeder Pipe Bridge		
Surveyor:	Trevor Fletcher		
Date:	28 th September 2020		
Feature/s being surveyed:	Bridge and associated structures		
Time Start:	18:41	Time Finish:	20:26
Sunrise/sunset time:	18:56	Detectors used:	Anabat Express, SSF Bat2
Temperature Start (°C):	14	Temperature Finish (°C):	11
Cloud Cover Start (%):	80	Cloud Cover Finish (%):	90
Humidity Start (%)	80	Humidity Finish (%)	98
Wind Start:	0	Wind Finish:	0
Precipitation:	Light drizzle, getting heavier approx. 20:05		
Land Use:	River		
Surrounding Land Use:	Riparian woodland, wooded gorge & river		

Surveyor location

Surveyor View

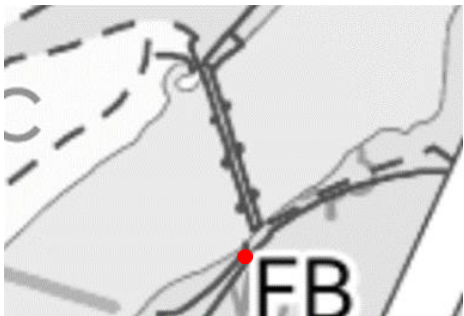

Time	Species	Activity and Direction
19:23	Ppy	Brief pass, flew downstream along eastern bank
19:25	Ppy	HNS – commuting?
19:31	Ppy	Foraging downstream of structure on eastern side

19:34	Ppy x2	Foraging mid-stream upstream of structure
19:56		Ppy foraging activity stopped
19:59	Ppy	1 pass
20:02	Ppy	Still foraging but less activity
20:07		Rain – no calls since 20:02

Project:	Feeder Pipe Bridge		
Surveyor:	Emma Carney		
Date:	28 th September 2020		
Feature/s being surveyed:	Bridge and associated structures		
Time Start:	18:41	Time Finish:	20:26
Sunrise/sunset time:	18:56	Detectors used:	Anabat Express, SSF Bat2
Temperature Start (°C):	14	Temperature Finish (°C):	11
Cloud Cover Start (%):	80	Cloud Cover Finish (%):	90
Humidity Start (%):	80	Humidity Finish (%):	98
Wind Start:	0	Wind Finish:	0
Precipitation:	Light drizzle, getting heavier approx. 20:05		
Land Use:	River		
Surrounding Land Use:	Riparian woodland, wooded gorge & river		
Surveyor Location	Surveyor View  		
Time	Species	Activity and Direction	
19:13 – 19:17	Ppy	Appeared to fly from under structure (unable to observe fully due to angle of view) – few passes foraging around	

		structure up and downstream before commuting downstream.
19:21	Ppy	HNS – intermittent faint and brief calls
19:25 onwards	Ppy	1 possibly 2 individuals very active
19:33		Very poor light by this point
19:44	Ppy	Continuous foraging and calls throughout survey
19:44	Mdau	HNS
19:55		Activity dropped considerably – occasional foraging and passes (Ppy)
20:04	Ppy + possibly Mdau	Ppy activity picked up briefly. HNS - Db pass
20:05		Drizzle gets heavier, bat activity dropped again until end of survey.

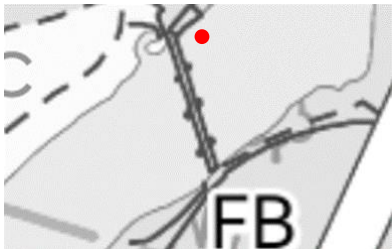
Project:	Feeder Pipe Bridge		
Surveyor:	Rebecca Howells		
Date:	28 th September 2020		
Feature/s being surveyed:	Bridge and associated structures		
Time Start:	18:41	Time Finish:	20:26
Sunrise/sunset time:	18:56	Detectors used:	Anabat Express, SSF Bat2
Temperature Start (°C):	14	Temperature Finish (°C):	11
Cloud Cover Start (%):	80	Cloud Cover Finish (%):	90
Humidity Start (%)	80	Humidity Finish (%)	98
Wind Start:	0	Wind Finish:	0
Precipitation:	Light drizzle, getting heavier approx. 20:05		
Land Use:	River		
Surrounding Land Use:	Riparian woodland, wooded gorge & river		

Surveyor location 	Surveyor View 	
Time	Species	Activity and Direction
19:14	Ppy >2	Bats foraging 0.5 m above river/water level
19:25	Mdau	HNS
19:28	Ppy >4	Constant foraging above river downstream of bridge
19:44	Mysp.	HNS
19:50	Ppy <4	Constant foraging
19:54	Ppy	Constant foraging - Light rain, bat activity reduced

Appendix B

Feeder Pipe Bat Return to Roost Survey

16th June 2021

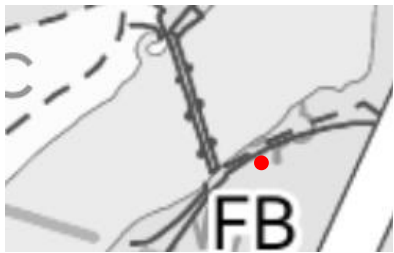
Project:		Feeder Pipe Bridge	
Surveyor:		Richard Poole	
Date:		16th June 2021	
Feature/s being surveyed:		Bridge and associated structures	
Time Start:	03.25	Time Finish:	04.45
Sunrise/sunset time:	04.55	Detectors used:	Anabat Express, SSF Bat2
Temperature Start (°C):	11	Temperature Finish (°C):	11
Cloud Cover Start (%):	90	Cloud Cover Finish (%):	90
Humidity Start (%)	97	Humidity Finish (%)	98
Wind Start:	0	Wind Finish:	0
Precipitation:		0	
Land Use:		River	
Surrounding Land Use:		Riparian woodland, wooded gorge & river	
Surveyor Location 		Surveyor View 	
Time	Species	Activity and Direction	
03.18	Ppy	Bats feeding over river – number unknown due to low light – constant activity	
03:27	Mysp. (possibly whiskered from	HNS	

	sonogram characteristic)	
03.28	Paur	Close overhead (34Khz) from trees across pipes
03.31	Pp	Single pass HNS
03.40	Ppy	Improving light – 1 Ppy present foraging around structure and pool
04.12	Ppy	Single bat still present – constant foraging activity
04.24	Ppy	Moved downstream of structure to forage
04.27	Ppy	Departed downstream
04.30		Dipper appeared from rock face/wall opposite, possibly roosting overnight in drainage hole
04.37	Pp	HNS, brief pass – possibly in trees above?
04.47		End of survey – no activity

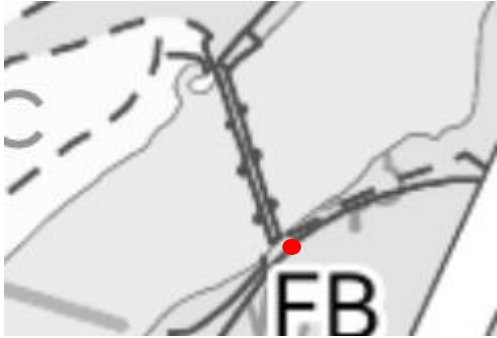
Project:	Feeder Pipe Bridge		
Surveyor:	Janine Burnham		
Date:	16th June 2021		
Feature/s being surveyed:	Bridge and associated structures		
Time Start:	03.18	Time Finish:	04.47
Sunrise/sunset time:	04.55	Detectors used:	Anabat Express, SSF Bat2
Temperature Start (°C):	11	Temperature Finish (°C):	11
Cloud Cover Start (%):	90	Cloud Cover Finish (%):	90
Humidity Start (%)	97	Humidity Finish (%)	98
Wind Start:	0	Wind Finish:	0
Precipitation:	0		
Land Use:	Rural		
Surrounding Land Use:	Riparian woodland, wooded gorge & river		

Surveyor Location		Surveyor View
		
Time	Species	Activity and Direction
03:23	Ppy	HNS - foraging
03:29 – 03:32	Ppy	HNS – foraging, low number of bats 1/2
03:39	Ppy x3	Seen commuting upstream over tree canopy
03:42 – 03:45	Ppy	Foraging up and down river corridor
03:50	Ppy	Foraging up and down river corridor
04:18	Ppy x3	Foraging around and underneath structure bridge
04:28	Ppy	Left site flying to north

Project:	Feeder Pipe Bridge		
Surveyor:	Olga Krylova		
Date:	16/06/2021		
Feature/s being surveyed:	Retaining wall		
Time Start:	03.25	Time Finish:	4:55
Sunrise/sunset time:	04.55	Detectors used:	Pettersson D240
Temperature Start (°C):	11	Temperature Finish (°C):	11
Cloud Cover Start (%):	90	Cloud Cover Finish (%):	90
Humidity Start (%)	97	Humidity Finish (%)	98
Wind Start:	0	Wind Finish:	0
Precipitation:	None		
Land Use:	River		
Surrounding Land Use:	Riparian woodland, wooded gorge & river		

Surveyor Location		Surveyor View
		
Time	Species	Activity and Direction
3:25	Pp, Mdau, Ppy	HNS - Continuous distant call of a number of bats
3:55	Mostly Ppy (56 kHz)	Activity is closer, foraging
4:17	Mdau	Activity reduced, possibly only 2 bats
4:17	Pp	Foraging along the pipes continuously
4:26		All activity stopped, no bats entered the structure
4:55		Finish

Project:	Feeder Pipe Bridge		
Surveyor:	Megan Watts		
Date:	16/06/21		
Feature/s being surveyed:	Bridge		
Time Start:	03:25	Time Finish:	04:55
Sunrise/sunset time:	04:55	Detectors used:	Anabat express, SSF2
Temperature Start (°C):	12	Temperature Finish (°C):	11
Cloud Cover Start (%):	90	Cloud Cover Finish (%):	80
Humidity Start (%)	88	Humidity Finish (%)	94
Wind Start:	Low E	Wind Finish:	Low E
Precipitation:	0		
Land Use:	River		
Surrounding Land Use:	Riparian woodland, wooded gorge & river		

Surveyor location		Surveyor View
		
Time	Species	Activity and Direction
3:25		Start
3:25	Ppy	HNS – Constant foraging until 4:27. When it became light 3 individuals seen, there may have been more previously.
3:27	Mysp.	HNS
3:43	Mysp.	HNS – faint call
4:27	Ppy	End of constant foraging activity
4:55		End

Key

Mdau	Daubenton's bat (<i>Myotis daubentonii</i>)
Mysp.	Myotis species (<i>Myotis</i> sp.)
Paur	Brown long-eared bat (<i>Plecotus auritus</i>)
Pp	Common pipistrelle (<i>Pipistrellus pipistrellus</i>)
Ppy	Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)

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