

Bat Activity Survey Report

55 Vastern Road, Reading, RG1 8BU

October 2019

Client details	Berkeley Homes	Berkeley House, Farnham Lane, Farnham Royal, SL2 3Q	
Date of Survey work	April-October 2019	Date of Report	October 2019
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1 Summary

1.1 Background to activity / development

1.1.1 Ecoconsult Ltd has been commissioned to carry out bat activity surveys for 55 Vastern Road, Reading.

1.1.2 The proposed development comprises: *'Demolition of existing structures and erection of a series of buildings ranging in height from 1 to 11 storeys, including residential dwellings (C3 use class) and leisure floorspace (A3 use class), together with a new north-south pedestrian link, connecting Christchurch Bridge to Vastern Road.'*

1.2 Summary of survey work

1.2.1 The following surveys have been undertaken to inform this report:

- Bat activity transect surveys of the 540m stretch of River Thames adjacent to the site
- Bat automated surveys of the north-eastern end of site adjacent to the River Thames

1.3 Summary of findings

1.3.1 Bats are utilising the River Thames corridor to forage and commute.

1.3.2 Species recorded using the river include common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Noctule and Myotis species (including Daubenton's bat).

1.3.3 The species with the highest levels of activity level was common pipistrelle and soprano pipistrelle. Low levels of activity were recorded for *Myotis* species (including Daubenton's bat), Nathusius' pipistrelle and noctule.

1.4 Summary of conclusions

1.4.1 The assemblage of bat species is typical for this type of habitat. The river has been assessed as being of borough importance for bats.

2 Survey and Site Assessment

2.1 Objectives of survey

2.1.1 The objectives of the survey were:

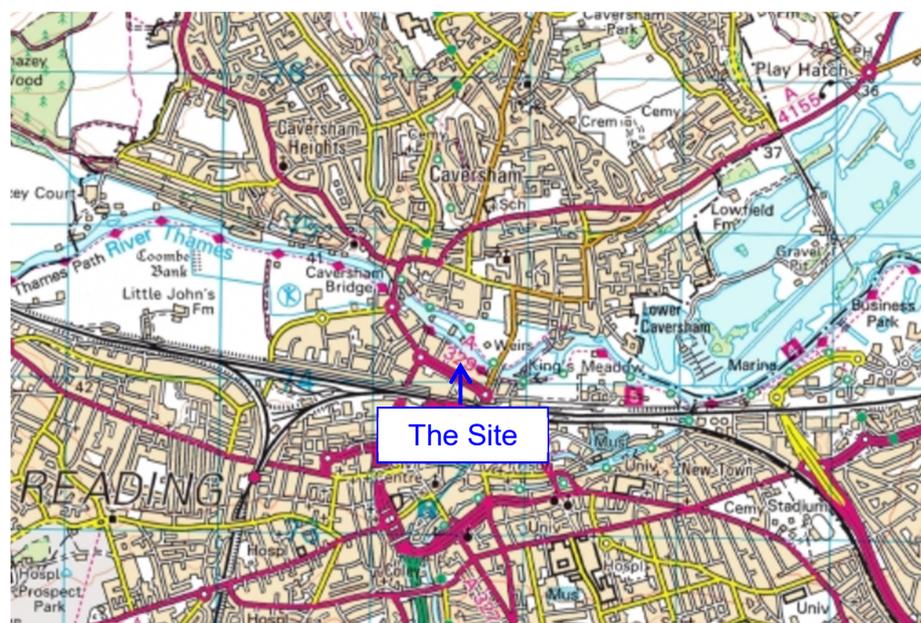
- to determine the level of bat activity along the river adjacent to the Site

2.2 Surrounding landscape

2.2.1 The site is located in the centre of Reading in an urban location. Land immediately to the east, south and west is built environment dominated by commercial and residential buildings with limited open greenspace. The River Thames is located 5m north of the site beyond which is Christchurch Meadows which consists of an area of amenity grassland with scattered trees. Fry's Island is located centrally within the river, 35m from the northern site boundary, and supports residential and commercial properties with small areas of broadleaved woodland.

2.2.2 The River Thames provides a wildlife corridor through Reading linking farmland and woodland to the west and gravel pits, farmland and woodland to the east.

2.2.3 The site is located at grid reference: SU 71557 74130.



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Figure 1: Site location (scale 1:50,000)

2.3 Site description

2.3.1 The Development Site is predominantly hard-standing with buildings and a small area of poor semi-improved grassland with two individual trees and small sections of intact species poor hedgerow. Please refer to Phase 1 Habitat Survey Report for details.

2.3.2 No evidence of roosting bats was recorded during the daytime bat inspection survey.

2.4 River Thames description

2.4.1 The stretch of River Thames immediately adjacent to site has reinforced banks with minimal marginal vegetation. Christchurch Meadows borders the river on the northern bank which comprises of amenity grassland with parkland trees and a small area of marginal vegetation fenced off for wildlife. Fry's Island is located within the stretch of river adjacent to site with a small area of broadleaved woodland, buildings and amenity grassland. Downstream the river connects to King's meadows, 400m from site, and beyond to a series of lakes with small areas of broadleaved woodland, 1.15km from site. Upstream the river links to farmland, 735m from site.

2.4.2 The river provides good foraging and commuting habitat for bats.

3 Methodology

3.1 Desk study

3.1.1 The Thames Valley Environmental Records Centre currently holds multiple records for five confirmed species of bats within 1km from the site. None of the records originated from within the site boundary.

3.2 Bat activity surveys

Transect surveys

- 3.2.1 Transect surveys were carried out between April and October 2019 (please refer to Table 1 below for survey details). Surveyors followed a route along the River Thames with six three minute listening points (see Figure 2 for a map of routes walked during transect survey and locations of listening stops). The route was walked twice in one night and in opposite directions on alternate surveys. Bats seen during the surveys were mapped and details of their behaviour recorded (i.e. foraging or commuting). Equipment carried by the surveyors recorded the bat calls and their location.
- 3.2.2 Anabat Walkabout detectors with built in GPS and Batbox Duet detectors were used during the survey. Bat recordings from the Anabat Walkabout detectors were analysed using Anabat Insight.



Figure 2: Transect walked by surveyors during activity transect surveys with listening points 1-6. Locations of automated detectors A and B are also shown.

Automated surveys

3.2.3 Two automated detectors were located on site between April and October (please refer to Table 1 below for survey details). The detectors were left on site for five consecutive nights each month to monitor bat activity (see Figure 2 for locations).

3.2.4 Song Meter SM4 detectors connected to omnidirectional microphones were used for these surveys. Bat recordings were converted from WAV files to ZC files using Kaleidoscope Converter software. Calls were analysed using Analook software.

Table 1: Timings and conditions of bat activity surveys

Date	Timings	Survey type	Weather
18/04/19	19:52-20:07 Dusk: 20:07	Bat dusk transect survey	15°C, no rain, light air, 25% cloud
18/04/19 - 23/04/19	30mins before sunset - 30mins after sunrise	Bat automated survey	2-23°C, light-gentle breeze, No rain
20/05/19	20:42-22:56 Dusk: 20:56	Bat dusk transect survey	20°C, no rain, calm, 50% cloud
15/05/19- 20/05/19	30mins before sunset - 30mins after sunrise	Bat automated survey	3-22°C, light-gentle breeze, No rain
17/06/19	21:08-23:23 Dusk: 21:23	Bat dusk transect survey	14°C, no rain, light air, 10% cloud
15/06/19- 20/06/19	30mins before sunset - 30mins after sunrise	Phase 2: Bat automated surveys	9.5-18°C, none to moderate breeze, infrequent rain
16/07/19	20:59-23:14 Dusk: 21:14	Bat dusk transect survey	21°C, no rain, gentle breeze, 30% cloud

Date	Timings	Survey type	Weather
17/07/19	03:06-05:06 Dusk: 05:06	Bat dawn transect survey	16°C, no rain, light air, 0% cloud
16/07/19- 21/07/19	30mins before sunset - 30mins after sunrise	Phase 2: Bat automated surveys	14-28°C, none to moderate breeze, no rain
18/08/19	20:08-22:23 Dusk: 20:23	Bat dusk transect survey	17°C, no rain, light breeze, 100% cloud
17/08/19- 22/08/19	30mins before sunset - 30mins after sunrise	Phase 2: Bat automated surveys	10-23.5°C, none to moderate breeze, infrequent rain
16/09/19	19:02-21:17 Dusk: 19:17	Bat dusk transect survey	16°C, no rain, light air, 100% cloud
16/09/19- 21/09/19	30mins before sunset - 30mins after sunrise	Phase 2: Bat automated surveys	5-23°C, light air to light breeze, no rain
10/10/19	18:07-20:22 Dusk: 18:07	Bat dusk transect survey	16°C, no rain, gentle breeze, 75% cloud
10/10/19- 16/10/19	30mins before sunset - 30mins after sunrise	Phase 2: Bat automated surveys	11-20.5°C, light air to moderate breeze, frequent rain

3.3 Personnel

3.3.1 Activity surveys were carried out by the following surveyors:

3.3.2 Robert Gray is a Senior Ecologist at Ecoconsult Ltd with a BSc (Hons) degree in Conservation and Environment. He has carried out bat surveys since 2006 and has extensive experience in ecological survey and monitoring techniques, protected species survey, mitigation and licensing and ecological clerk of works work. He holds the following Natural England licences:

- Natural England Licence to disturb and take bats for the purposes of science and education or conservation bat survey licence (no. 2015-12641-CLS-CLS).
- Natural England Level 1 Licence to survey great crested newts for scientific (including research) or educational purposes (no. 2015-18636-CLS-CLS).

3.3.3 Maia Corbyn is a Senior Ecologist at Ecoconsult Ltd with a BSc (Hons) degree in Biological Sciences. She has carried out ecological surveys since 2007 and holds the following Natural England licences:

- Natural England Licence to disturb and take bats for the purposes of science, education and conservation (no. 2019-39132-SCI-SCI).
- Natural England Level 1 Licence to survey great crested newts for scientific (including research) or educational purposes (no. 2015-18637-CLS-CLS).

3.3.4 Marianne Stanley, Sylfest Muldal and Joseph Wright are Assistant Surveyors at Ecoconsult Ltd and have carried out bat surveys since 2017.

3.4 Constraints

3.4.1 Bat calls (recorded using Walkabout bat detectors and Song Meter SM4 detectors) have been identified using Analook and Anabat Insight software using a range of characteristic measurements. Bat calls can be identified from bat recordings with varying degrees of confidence, depending on species and quality of the bat recording (which reduces in quality as the distance between the bat and the bat detector increases).

3.4.2 The results are biased towards bats which produce louder echolocation calls. Species such as brown-long-eared bats can produce a very quiet call and in certain circumstances do not echolocate.

3.4.3 A bat pass in this report corresponds to a series of bat calls from a single species. Please note that the number of bat passes shows level of activity and does not correlate with the number of bats present.

3.4.4 During transect surveys, bats heard were not always observed due to low light levels and visual obstacles.

3.5 Results of surveys

Bat species

3.5.1 The following species were recorded during the activity surveys:

- **Common pipistrelle *Pipistrellus pipistrellus***

Native, common across the UK. Population estimate: UK 2,430,000; GB 1,280,000.¹

Common pipistrelle is regarded as one of Britain's most common bats. This situation is local, regional and national.²

- **Soprano pipistrelle *Pipistrellus pygmaeus***

Native, common across the UK. Population estimate: UK 1,300,000; GB 720,000.¹

Soprano pipistrelle is regarded as one of Britain's most common bats. This situation is local, regional and national.²

- **Nathusius' pipistrelle *Pipistrellus nathusii***

Native, rare. Population estimate: UK 16,000; GB 4,000.¹

Unknown. Nathusius' pipistrelle is widely recorded throughout Britain but records are sparse.

- **Daubenton's bat *Myotis daubentonii***

Native, common. Population estimate: UK 560,000; England 95,000.¹

Daubenton's bat is widely distributed in Britain. This situation is local, regional and national.²

- **Noctule *Nyctalus noctule***

Native, uncommon. Population estimate: UK 50,000; England 45,000.¹

Noctule bats are found throughout England and Wales and in the extreme southwest of Scotland. This situation is local, regional and national.²

¹ UK Mammals: Species Status and Population Trends. JNCC/Tracking Mammals Partnership. 2005

² Altringham, J.D., 2003. British Bats Harper, Collins

- **Brown long-eared *Plecotus auritus***

Native, common. Population estimate: UK 245,000; England 155,000. ¹

Brown long-eared (*Plecotus auritus*) bats are regarded as a 'common' species of bat. This situation is local, regional and national. ²

Bat abundance

3.5.2 Bat Activity Index (number of bat passes recorded per hour) has been calculated using data collected by each automated detector. Bat activity index is measured as the number of bat passes per surveyed hour between dusk and dawn within each month. Please see Table 2 below.

Table 2: Bat activity index (bat passes per hour) for each bat species each month at each location. Hours are calculated as time between dusk and dawn.

	Location A	Location B
April		
Bat species	0.061	
Common pipistrelle	30.755	4.612
Nathusius' pipistrelle	0.204	0.061
Noctule	0.327	0.224
Pipistrelle species	0.143	0.020
Soprano pipistrelle	14.306	12.286
May		
Common pipistrelle	34.21	15.98
Myotis species	2.75	0.56
Nathusius' pipistrelle	0.05	
Noctule	0.36	0.22
Pipistrelle species	0.27	0.24
Soprano pipistrelle	6.93	2.73
June		
Bat species	0.02	
Common pipistrelle	29.00	13.36
Myotis species	0.44	
Nathusius' pipistrelle	0.09	
Noctule	1.77	1.68
Pipistrelle species	0.07	0.19
Soprano pipistrelle	1.68	0.93
July		
Bat sp		0.03
Common pipistrelle	1.61	24.23
Myotis species	0.03	0.03
Nathusius' pipistrelle	0.03	0.05
Noctule	2.49	3.64
Pipistrelle species	0.15	0.45
Soprano pipistrelle	1.51	1.28
August		
Common pipistrelle	26.61	13.74
Myotis species	0.02	
Noctule	0.83	0.93
Pipistrelle species	0.02	0.02
Soprano pipistrelle	0.77	0.95
September		
Common pipistrelle	5.84	0.68
Nathusius' pipistrelle	0.31	0.19
Noctule	0.85	0.78
Pipistrelle species	0.05	0.02
Soprano pipistrelle	0.83	0.40
October		
Common pipistrelle	0.41	0.17
Noctule	0.16	0.20
Soprano pipistrelle	0.08	0.04

- 3.5.3 Common pipistrelle: Common pipistrelle bats were recorded every month surveyed. The highest night of activity was recorded in July at Location A with a bat activity index of 34.21 (bat passes per hour). The maximum number of bat passes recorded by an automated detector in a 30 minute period was 122. Small numbers of bats (3 or less) were seen foraging along the river at any given time during the transect surveys.
- 3.5.4 Soprano pipistrelle: Soprano pipistrelle bat were recorded every month surveyed. The highest night of activity was recorded in April at Location A with a bat activity index of 14.31 (bat passes per hour). The maximum number of bat passes recorded by an automated detector in a 30 minute period was 76. Small numbers of bats (3 or less) were seen foraging along the river at any given time during the transect surveys.
- 3.5.5 Nathusius' pipistrelle: Nathusius' pipistrelle bat calls were recorded every month apart from August and October. The highest night of activity was recorded in September at Location A with a bat activity index of 0.30 (bat passes per hour). The maximum number of bat passes recorded by an automated detector in a 30 minute period was 7. Although Nathusius' pipistrelle bats were recorded during the transect survey no bats were seen. Recordings were sparse and therefore it is likely only individual bats are using the river to forage.
- 3.5.6 Myotis species: Myotis species of bats were recorded in May, June and July on the automated detectors and every month on the transect surveys. Daubenton's bats (a species of Myotis) were seen foraging along the river during every transect survey apart from October. Daubenton's social calls were also recorded on the automated detectors in May and June. The highest night of activity was recorded in May at Location A with a bat activity index of 2.75 (bat passes per hour). The maximum number of bat passes recorded by an automated detector in a 30 minute period was 20. Small number of bats (maximum of 2 Daubenton's bats) were seen foraging along the river at any given time during the transect surveys.
- 3.5.7 Noctule: Noctule bat calls were recorded every month. The highest night of activity was recorded in July at Location A with a bat activity index of 3.64 (bat passes per hour). The maximum number of bat passes recorded by an automated detector in a 30 minute period was 16. Only individual number of bats were seen commuting at any given time during the transect surveys.

Ecobat

3.5.8 The Ecobat tool compares bat activity recorded on site to bat activity within their records located within the 100km² around the site and within 30 days of the survey date. Please see Table 3 below. Please see appendix C for full Ecobat report.

Table 3: Ecobat analysis showing the number of nights recorded bat activity fell into each activity band for each species.

	Myotis species	Noctule	Pipistrelle species	Nathusius' pipistrelle	Common pipistrelle	Soprano pipistrelle
Location A						
High Activity	2	2	16		27	5
Moderate/ High Activity		12		1	4	16
Moderate Activity	5	8			1	7
Low/ Moderate Activity		6		6		3
Low Activity	2	3		5		1
Total nights recorded out of 34 nights	9	31	16	13	32	32
Location B						
High Activity					16	4
Moderate/ High Activity	2	12		1	11	11
Moderate Activity	1	8		2	1	8
Moderate Activity		9		2	1	7
Low Activity	1	2	6	5		1
Total nights recorded out of 34 nights	4	31	9	8	32	31

3.5.9 The River Thames would be expected to be of relatively higher value for bats compared to the data collected by Ecobat within the surrounding 100km² because the majority of this is urban. The analysis shows that compared to surrounding area:

- the majority of nights have moderate to high activity for noctule, common pipistrelle and soprano pipistrelle in location A and common pipistrelle in location B
- the majority of nights having low to moderate activity for Myotis, and Nathusius' pipistrelle in location A and Myotis, Noctule, Nathusius' pipistrelle and soprano pipistrelle in location B

Spatial distribution of bat activity on site

3.5.10 Higher levels of activity were recorded in the following areas:

- along the river and canopy of adjacent trees at the eastern end of the transect (listening point 5 and 6)
- along the river at the western end of the site (listening point 1)
- along the river and canopy of adjacent trees at the western end of the site (listening point 3)

3.5.11 The following maps show the bat calls picked up by the detectors along the transects during the survey, i.e. the location indicates where the bat detector was (not the bat) when the bat call was recorded. The bat intensity colours show the areas where the bats calls were mostly recorded during the survey.

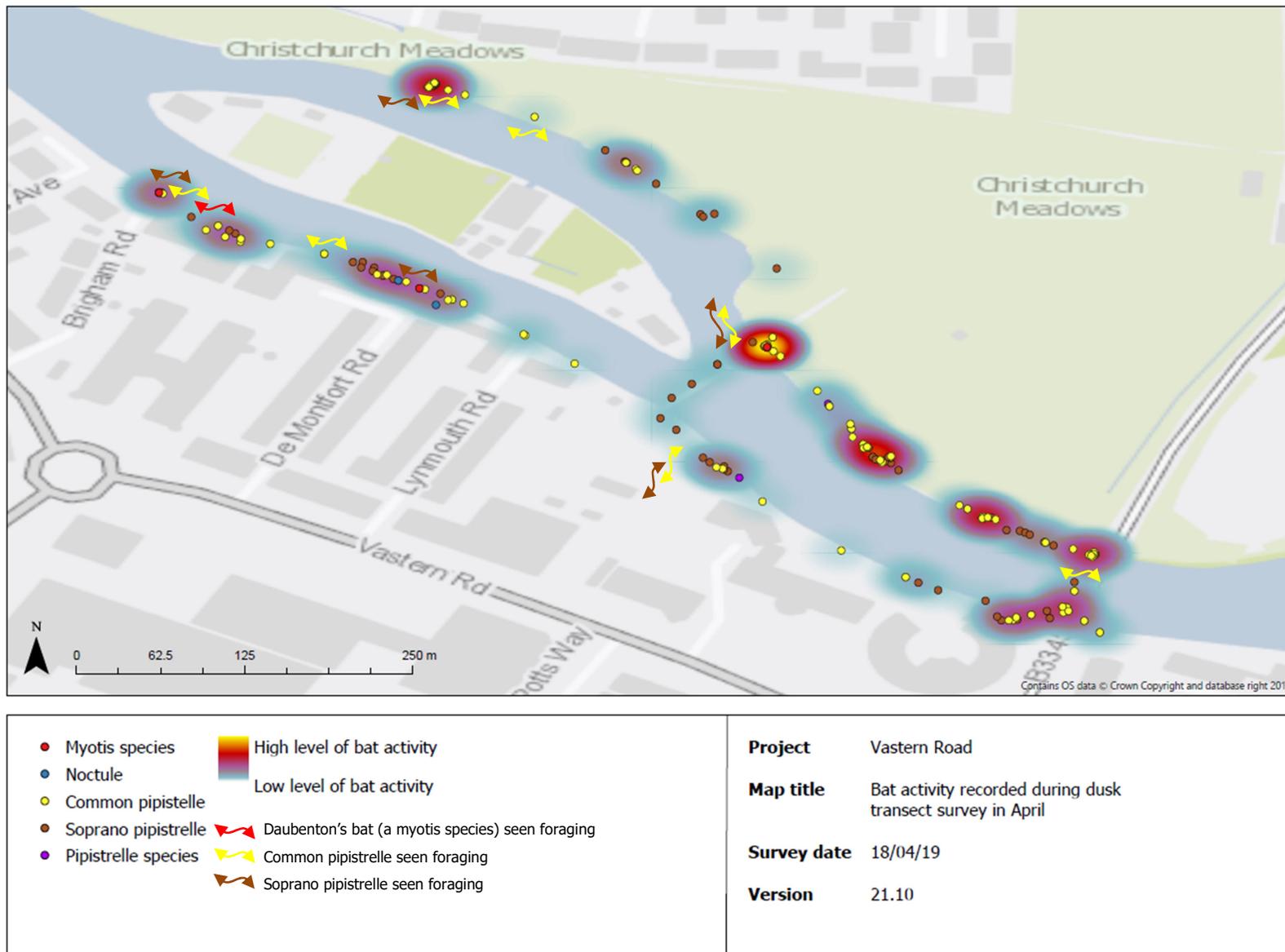
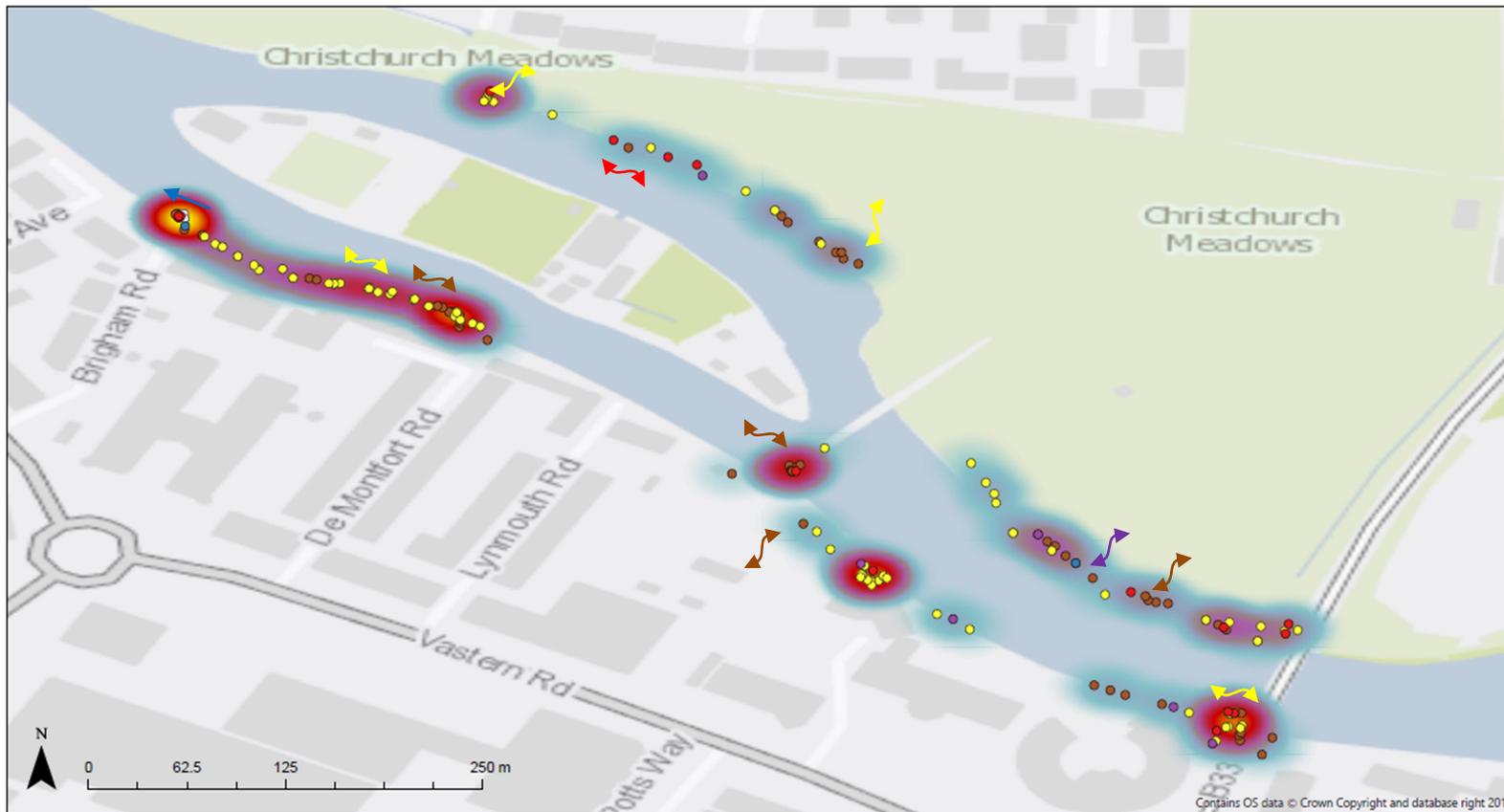


Figure 3: Bat activity recorded during activity survey in April



<ul style="list-style-type: none"> ○ Nathusius pipistrelle ● Myotis species ● Noctule ● Common pipistrelle ● Soprano pipistrelle ● Pipistrelle species 	<ul style="list-style-type: none"> High level of bat activity Low level of bat activity Daubenton's bat (a myotis species) seen foraging Common pipistrelle seen foraging Soprano pipistrelle seen foraging Pipistrelle species seen foraging Noctule seen commuting 	<p>Project Vastern Road</p> <p>Map title Bat activity recorded during dusk transect survey in May</p> <p>Survey date 20/05/19</p> <p>Version 21.10</p>
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Figure 4: Bat activity recorded during activity survey in May

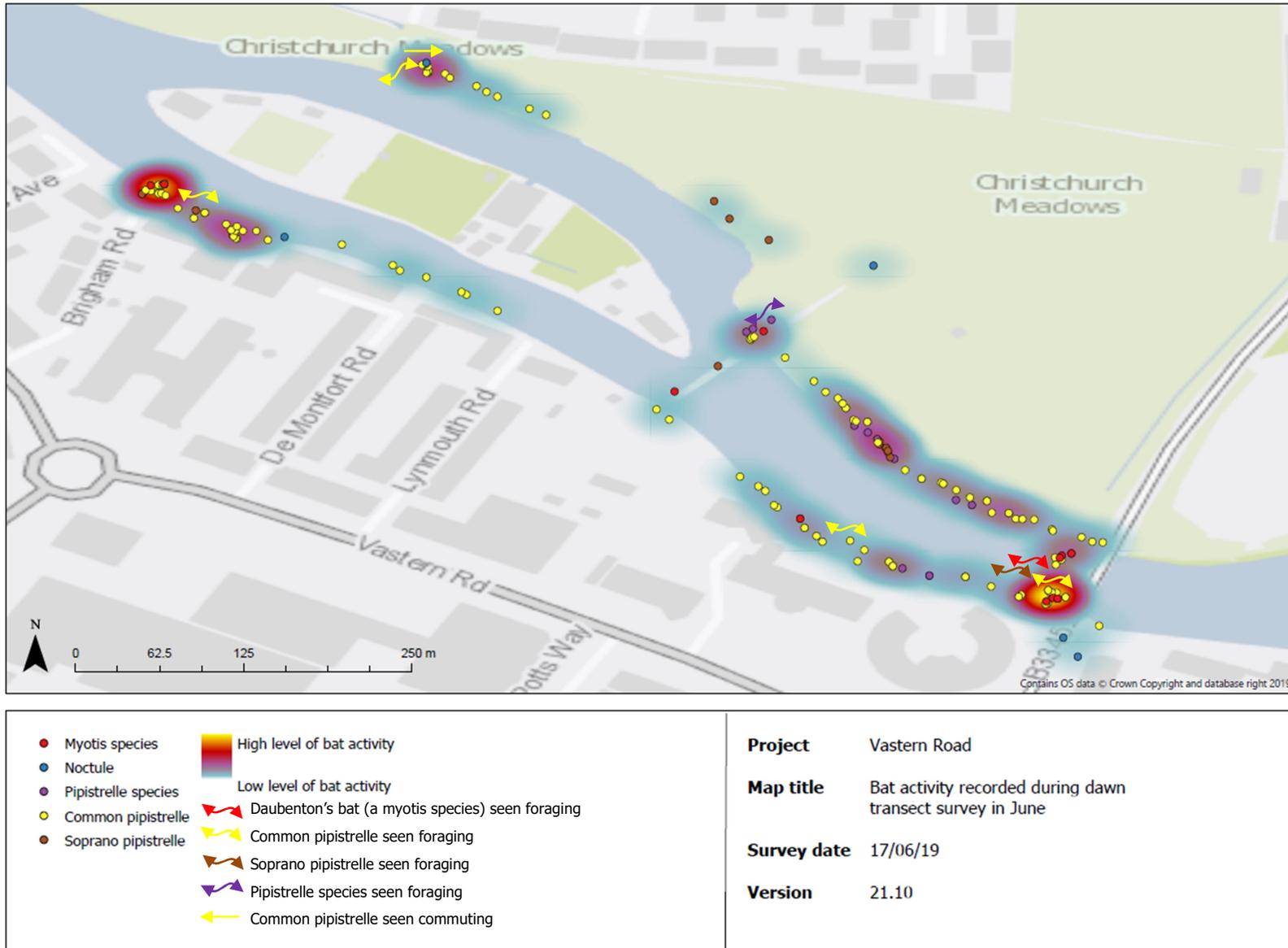


Figure 5: Bat activity recorded during activity survey in June

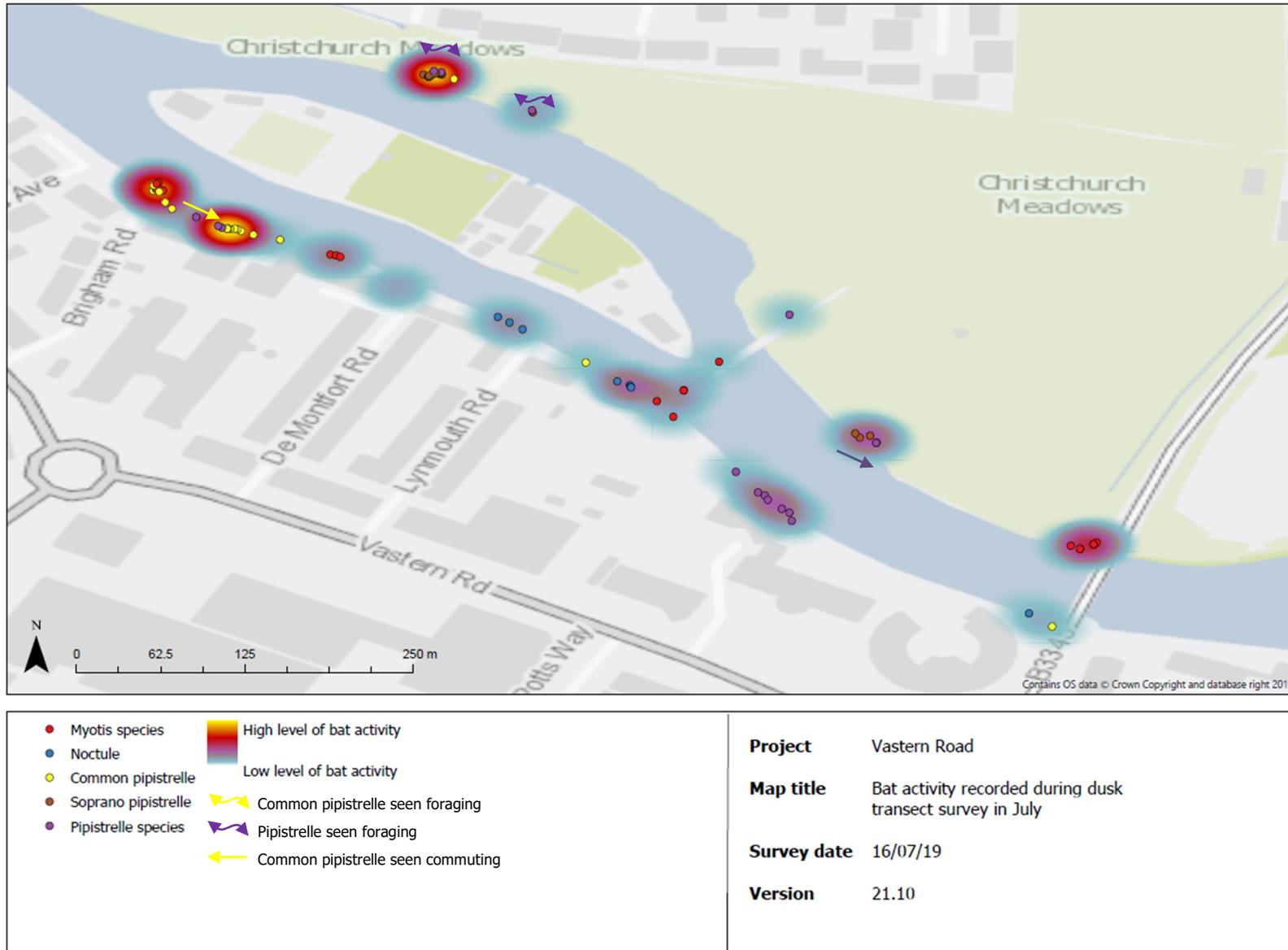


Figure 6: Bat activity recorded during transect survey in July (dusk)

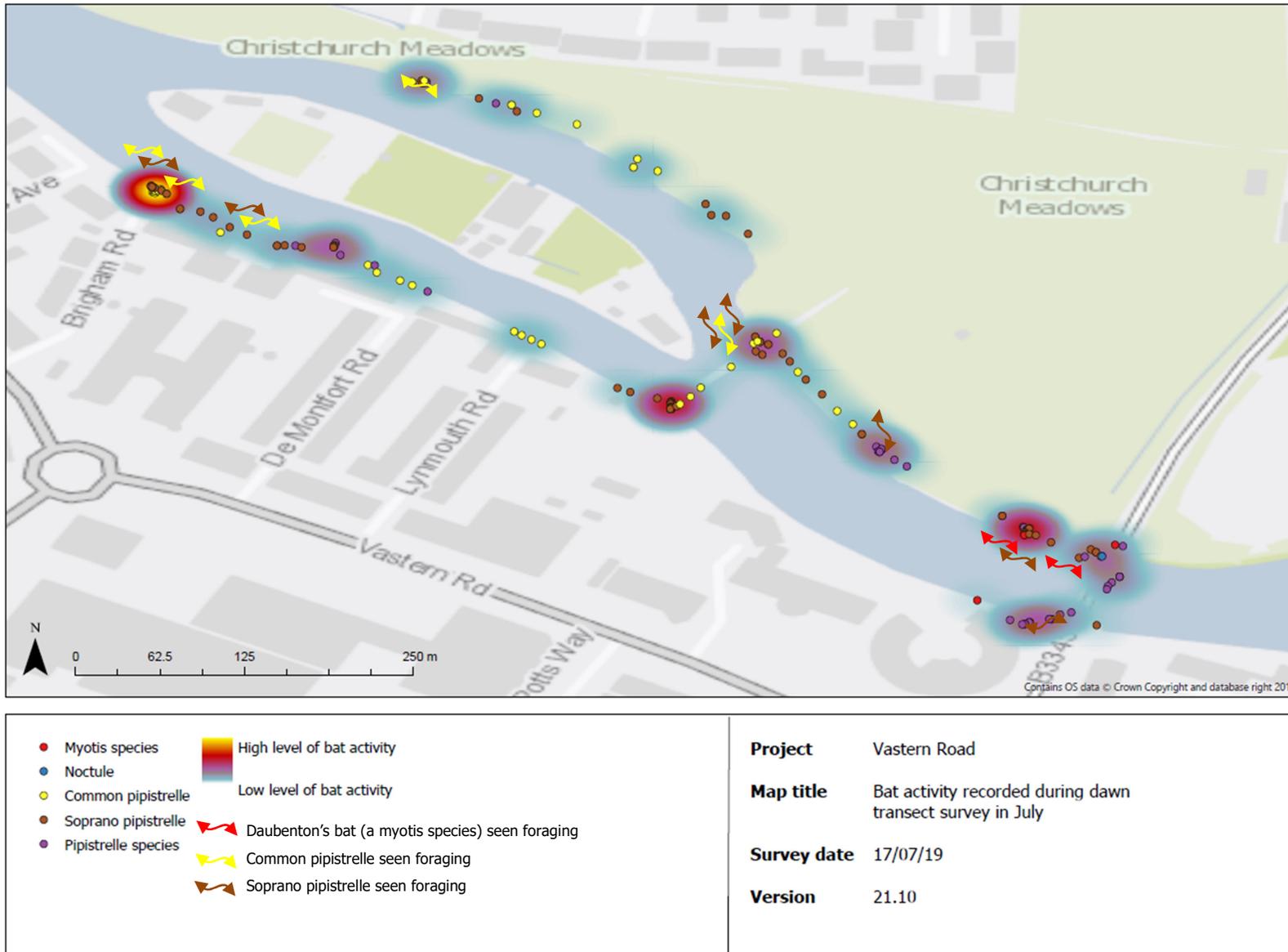


Figure 7: Bat activity recorded during activity survey in July (dawn)

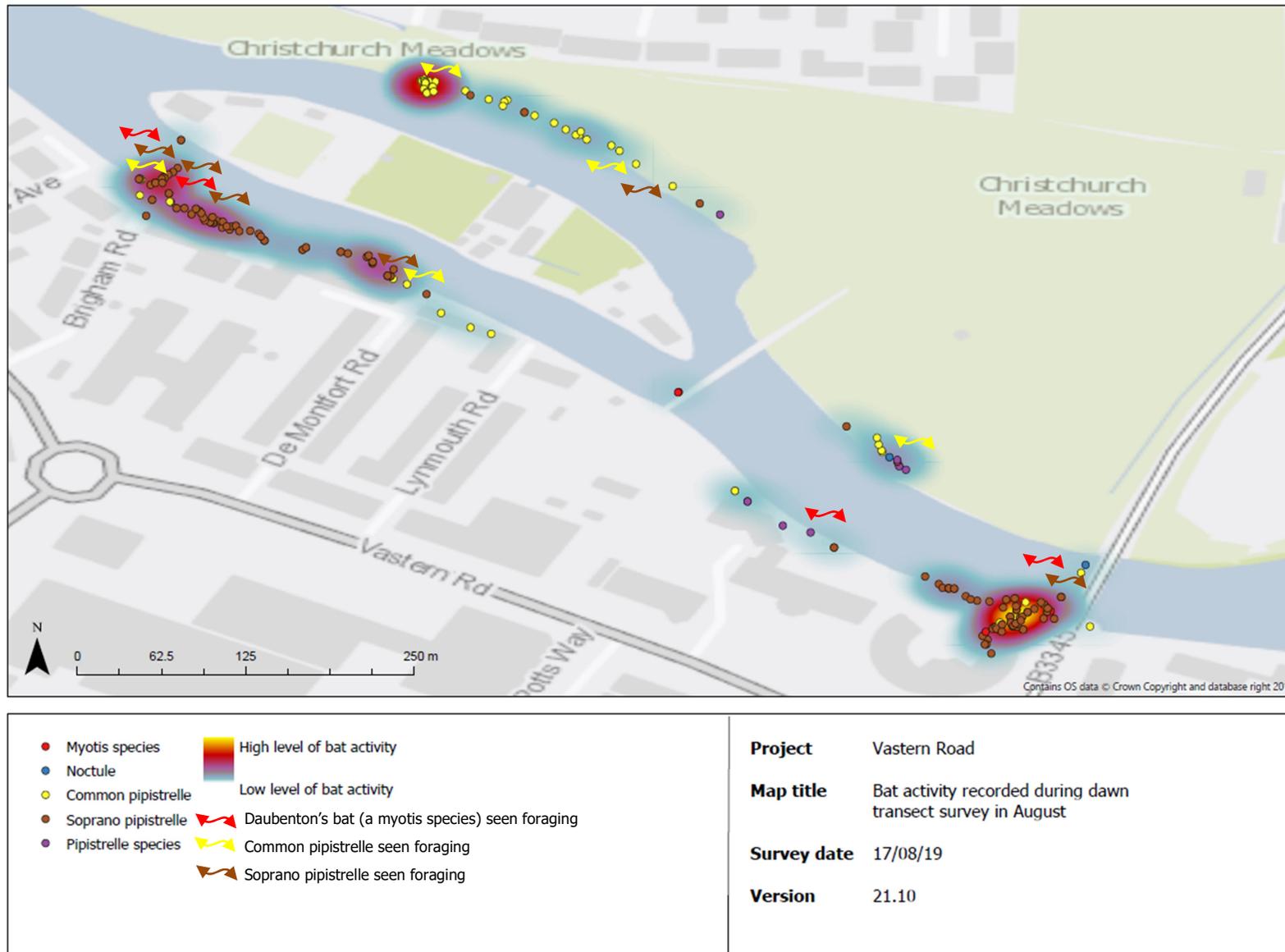


Figure 8: Bat activity recorded during activity survey in August

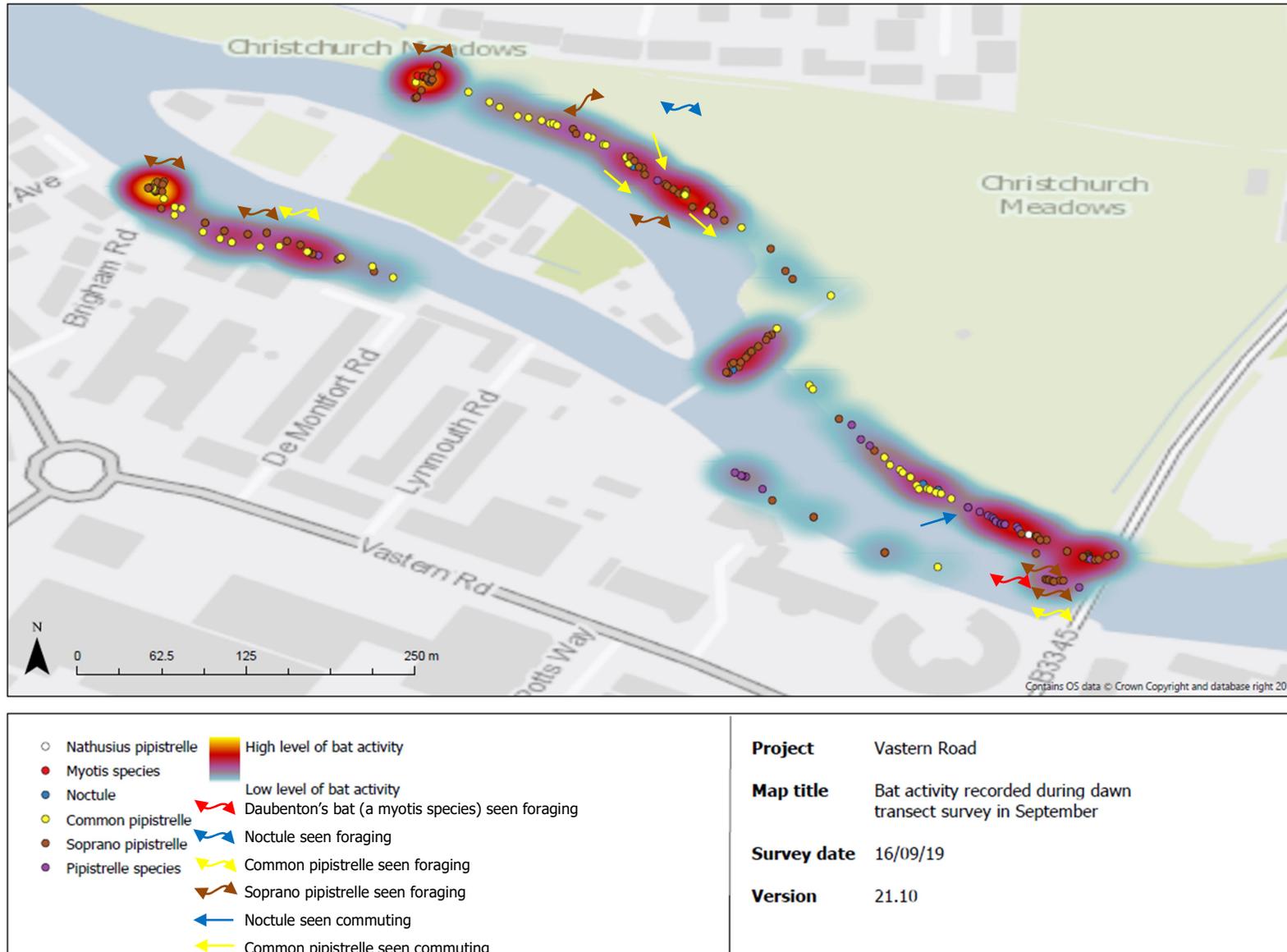


Figure 9: Bat activity recorded during activity survey in September