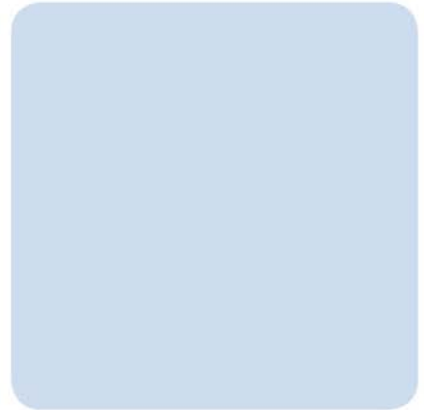


RPS

Dragon Parc, Abercanaid, Merthyr Tydfil
Bat Activity Survey



Date: September 2016

Our Ref: JER6710

RPS

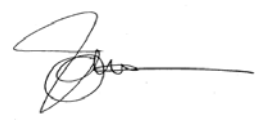
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Quality Management

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Amendment Record

Revision No.	Date	Reason for Change	Authors Initials

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Drawing JER6710-ECO-003	Bat Detector Recording Plan.
Drawing JER6710-ECO-004	Bat Activity Survey Plan

Appendices

Appendix 1	Remote Recording Results Tables
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1 Introduction

1.1 Background and Scope of Works

- 1.1.1 Huntley Investment Ltd propose to submit a planning application for the mixed use development of the former Hoover Factory Site at Dragon Parc, Abercanaid, Merthyr Tydfil. An Ecological Appraisal, carried out in March 2016, identified potential bat foraging habitats within the site. Consequently a series of bat activity surveys were undertaken through summer 2016.
- 1.1.2 The aim of the bat activity surveys was to determine which bat species utilise the on-site habitats, to evaluate the relative levels of activity for each species recorded and to assess the overall importance of the site for local bat populations.
- 1.1.3 This report sets out the baseline bat activity survey information from the 2016 surveys. The report includes a brief review of the implications of the development of the site for foraging / commuting bats, with outline recommendations for mitigation and site design.

1.2 Site Description and Context

- 1.2.1 The Dragon Parc site is approximately 8.2ha and comprises a central area of hardstanding building footings (where several industrial buildings have been demolished) with associated hardstanding paths and internal roads. In the north of the site is a former car park which now supports regenerating and marshy grassland, with patches of willow scrub. A former office and gatehouse are located at the southern end of the site. Rank grassland with semi-mature trees, woodland and dense scrub border the site.
- 1.2.2 The site is located in the small settlement of Abercanaid to the south of Merthyr Tydfil. The River Taff (designated a Site of Importance for Nature Conservation - SINC) adjoins the eastern boundary separating the site from further industrial areas to the east. A residential area (Stanfield Close) and broad-leaved woodland park are located to the west.
- 1.2.3 In the wider landscape context, the town of Merthyr Tydfil extends north surrounded by otherwise rural areas consisting of plantation coniferous woodland, pasture, semi natural woodland, grassland and quarries.

2 Methods

2.1 Transects Surveys

- 2.1.1 The survey methodology has followed guidelines published by the Bat Conservation Trust (Collins, 2012) with reference to earlier guidelines published by English Nature (Mitchell-Jones, 2004). A combination of transect surveys and remote recordings were used to assess foraging / commuting activity across the site.
- 2.1.2 The transect routes followed the site perimeter to achieve coverage of all potential flight lines and foraging areas, in particular the following key locations:
- Scrub around the southern end of the site and the derelict office building;
 - Scrub and mature trees along the western site boundary
 - The eastern site boundary adjoining the off-site River Taff SINC.
- 2.1.3 The direction and start positions of transects were varied between visits so that all parts of the site were covered during the first hour after sunset on at least one occasion.
- 2.1.4 Each transect was walked with surveyors using an Elekon Batlogger full spectrum hand held automatic detector and a Bat Box Duet (heterodyne and frequency division) detector. The species, time and location of bat activity was recorded, and notes made on observed behaviour, such as the direction, height and pattern of flight, foraging behaviour and number of bats present at one time.
- 2.1.5 Table 2-1 shows the dates, times and weather conditions and locations of each of the transect surveys. The transect routes are shown on the Bat Activity Survey Plan (*Drawing JER6710-ECO-004*).

Table 2-1. 2016 Transect Survey Dates, Times and Weather Conditions

	25th May	20th July	1st September
Sunset	21:15	21:19	20:00
Survey Start - finish	20:55 – 22:45	21:02 – 23:08	19:45 – 21:45
Weather	9°C, dry, still, overcast	14°C dry, light breeze, overcast	10°C, dry, still, overcast

2.2 Remote Recording

- 2.2.1 Static automated bat detector / recorders were used for longer term continuous recording at three locations within the site. Remote recording focussed on the trees and scrub along the western boundary and the habitats on the eastern boundary adjoining the River Taff which provided the most suitable flight lines and foraging areas. Two types of recorder were used, a Wildlife Acoustics SM4 full spectrum detector, and an Anabat Express Frequency Division detector.
- 2.2.2 The locations and dates of overnight recording are shown on the Remote Bat Detector Recording Plan (*Drawing JER6710-ECO-003*) and presented in Table 2-2

Table 2-2. Remote Bat Detector Recording Locations and Dates.

	Sunset 9 th June to Sunrise 13 th June	Sunset 21 st July to Sunrise 26 th July	Sunset 1 st September to Sunrise 6 th September
Recorder	Wildlife Acoustics SM4 Full Spectrum	Wildlife Acoustics SM4 Full Spectrum	Anabat Express Frequency Division
Location	Southwest boundary	East boundary	Southeast boundary

2.3 Data Analysis

Transect Surveys

- 2.3.1 Bat calls recorded on the Elekon Batlogger were analysed manually using Elekon Bat Explorer software (Version 1.11.3). Recorded data was cross referenced with the surveyors hand notes to compile a single record of bat activity recorded and observed during the survey.
- 2.3.2 Where the recording was of sufficiently high quality, calls of the following species were identified to species level:
- Common pipistrelle *Pipistrellus pipistrellus*
 - Soprano pipistrelle *Pipistrellus pygmaeus*
 - Serotine *Eptesicus serotinus*
 - Leisler's *Nyctalus leisleri*
 - Noctule *Nyctalus noctula*
 - Greater horseshoe *Rhinolophus ferrumequinum*
 - Lesser horseshoe *Rhinolophus hipposideros*
- 2.3.3 Some of the recordings were not of sufficiently high quality for confident species identification. In some instances, the parameters of some recordings (such as call duration, interpulse interval, peak frequency etc) were intermediate between two related species. Such calls were categorised using the following scheme:
- Myotis species were categorised at *Myotis sp.*

- Calls intermediate between serotine and Leisler's bats were categorised as *serotine / Leisler's*.
- Poor quality of intermediate calls between noctule and Leisler's, bats were categorised as *Nyctalus sp.*

Remote Recording

- 2.3.4 Bat calls recorded on the SM4 were analysed using the Wildlife Acoustics Kaleidoscope software (Version 3.1.4). Calls recorded on the Anabat Express were extracted as zero crossing (.zc file) format and also analysed using the Wildlife Acoustics Kaleidoscope software (Version 3.1.8).
- 2.3.5 Given the variability in the accuracy of automatic species identification between species, a calibration dataset was run and fully analysed manually to compare the automatic species identification to manual species identification.
- 2.3.6 An SM4 detector was left out on a site with known high value for bats where a high number of species had been recorded. The recorder was left out for six nights between the 13th April and 19th April inclusive. The data was then analysed using automatic species identification in Kaleidoscope (version 3.1.4) before being checked manually. A total of 3008 recordings were analysed.
- 2.3.7 Some of the recordings were not of sufficiently high quality for confident identification, most notably Myotis calls and Serotine / Leisler's calls where species differentiation can also be problematic due to overlapping call parameters. Myotis species were categorised at Myotis sp.
- 2.3.8 Due to the large volume of data recorded and the need for efficient analysis, recordings marked as No ID (where the kaleidoscope software recognises a bat call but does not provide a species identification) or Noise were disregarded.
- 2.3.9 The findings of the calibration run are shown in Table 2-3 along with the approach to identification of species calls.

Table 2-3. Results of SM4 Calibration of Automatic Species Identification.

Automatic Species Identification	Calibration Accuracy % of automatic calls confirmed through manual identification)	Identification Method Used in Analysis
Common pipistrelle	100%	Automatic identification - not requiring manual check
Soprano pipistrelle	99.6%	Automatic identification - not requiring manual check
Nathusius's pipistrelle	0%	Manually checked and identified to species where calls are of sufficient quality
Greater Horseshoe	100%	Automatic identification - not requiring manual check
Lesser horseshoe	100%	Automatic identification - not requiring manual check
Noctule	46.5%	Manually checked and identified to species where calls are of sufficient quality

Leisler's / Serotine	75%	Manually checked and identified to species where calls are of sufficient quality
Myotis	100%	Manually checked and identified to Myotis sp. group.
Brown Long-eared	None recorded	Manually checked and identified to species.
Barbastelle	None recorded	Manually checked and identified to species.
No Identification (No ID)	N/A	Disregarded
Noise	N/A	Disregarded.

3 Results

3.1 Transect Surveys

- 3.1.1 The results of the transect surveys are shown in the Bat Activity Survey Plan (*Drawing JER6710-ECO004*). Bat activity recorded and observed during each transect is also summarised below.

25th May 2016

- 3.1.2 The overwhelming majority of bat calls recorded were of common pipistrelle with very small numbers of soprano pipistrelle passes, two passes of *Myotis* bats and three of noctule. Bat activity was recorded throughout the transect survey and was ongoing when the survey ended at 94 minutes after sunset.
- 3.1.3 Bat activity started seven minutes before sunset with common pipistrelle and soprano pipistrelle observed flying around the derelict office building and associated scrub. The very early appearance of bats suggests that individual bats of both pipistrelle species were roosting in the building during the day.
- 3.1.4 Continuous foraging by common pipistrelle was recorded early in the survey along the trees and scrub on the western boundary with bats seen flying north and south along the boundary. Continuous common pipistrelle foraging was also recorded towards the end of the survey for several minutes over the scrub at the southern end of the site. At least two bats were recorded together in both locations. Occasional soprano pipistrelle passes were also recorded in both locations, and two individual noctule passes were registered over the south of the site.
- 3.1.5 Prolonged continuous foraging of common pipistrelle was recorded over the River Taff which is located off-site parallel with the eastern site boundary.
- 3.1.6 Lower levels of activity were recorded at the northern end of the site and on the north-west boundary with occasional passes of common pipistrelle, soprano pipistrelle, *Myotis* species and noctule.

20th July 2016

- 3.1.7 Bat activity levels were higher during the July survey than the May survey. The overwhelming majority of bat calls recorded were of common pipistrelle with occasional soprano pipistrelle calls. A single noctule pass was also recorded.
- 3.1.8 A period of continuous common pipistrelle foraging was recorded from 11 minutes after sunset around the derelict office building and scrub in the south of the site and along the south-west boundary. At least three bats were seen together. Foraging around the derelict building was again ongoing two hours after sunset with two common pipistrelle observed.
- 3.1.9 Continuous common pipistrelle foraging was also recorded and observed along the south-west boundary with at least four bats seen. Very occasional soprano pipistrelle passes were also

recorded. A single noctule was seen flying north over the site from this location at 26 minutes after sunset.

- 3.1.10 Individual common pipistrelles were seen flying along the north-west boundary and occasionally along the eastern boundary although prolonged foraging activity was not recorded in these locations.
- 3.1.11 As in May prolonged foraging by common pipistrelle with occasional soprano pipistrelle passes was recorded off-site over the River Taff.

1st September 2016

- 3.1.12 Bat activity levels were lower during September compared to May and July. Soprano pipistrelle made up a slightly higher proportion of calls although the large majority were still common pipistrelle. Two passes by Myotis bats were also recorded.
- 3.1.13 Foraging activity was focussed again close to the derelict office buildings, along the tree line and scrub on the southwest and western boundaries, and over the off-site River Taff.
- 3.1.14 Early activity of common and soprano pipistrelle around the derelict buildings (starting 8 minutes after sunset) indicates the possibility of both pipistrelle species roosting in the building.

3.2 Remote Recording

Overall Species Count

- 3.2.1 There were approximately 12000 registrations over the course of the 15 days remote recording in June, July and September. Common pipistrelle comprised 82% of registrations with 10% noctule, 5% soprano pipistrelle, and the remaining 3% made up of Myotis, Serotine / Noctule and unconfirmed Nyctalus species.

9th to 13th June – Western Boundary

- 3.2.2 Comparatively low levels of activity were recorded in June compared to July and September. June also recorded the lowest species count with the large majority of calls being common pipistrelle (approximately 900 passes), and with very small numbers of soprano pipistrelle (69 passes), three noctule passes and one Myotis pass. Pipistrelle activity was reasonably constant over the five nights with a dip on the second night for both pipistrelle species.

21st to 25th July - Eastern Boundary

- 3.2.3 Substantially higher levels of activity were recorded in July compared to June with more bat species recorded than in June. Common pipistrelle made up the large majority of recordings (approximately 4000 passes) followed by noctule (approximately 1200 passes) with small numbers of soprano pipistrelle, serotine / Leisler's, unidentified Nyctalus, and Myotis calls.

- 3.2.4 The distribution of activity varied through the 5 day recording period and different species showed different patterns of activity. Most of the of common pipistrelle passes were recorded in the last 3 days and almost all of the soprano pipistrelle passes were recorded on the last night.
- 3.2.5 Most notable was the number of noctule passes recorded (nearly 1200) compared to three in June and 14 in September. Variation in the number of Nyctalus species mirrored that of noctule suggesting that many of the Nyctalus were indeed noctules.

1st to 5th September – South-eastern Boundary

- 3.2.6 Common pipistrelle made up the large majority of September recordings (approximately 4900 passes) consistent with June and July. Small numbers of soprano pipistrelle (approximately 350 passes) were also recorded with occasional individual passes of noctule, Nyctalus, Myotis, and serotine / Leisler's bat.
- 3.2.7 There was some variation between different survey nights with nearly half of the common pipistrelle passes and a third of the soprano pipistrelle passes recorded on the final night.

4 Discussion

- 4.1.1 The site does not support a large number of bat species with the large majority of species recorded being common pipistrelle, and small numbers of soprano pipistrelle and Noctule. Other species (Myotis and serotine / Leisler's) were recorded extremely rarely.
- 4.1.2 Activity levels for all species were higher in mid / late July and this is not unexpected with some young likely to have begun to fly by this time. The reduction in activity levels between July and September is likely to reflect the typical reduction in activity towards autumn.
- 4.1.3 The main part of the site comprising the open area of former buildings footings, and the northern area of grassland and scrub were subject to very low levels of bat activity with infrequent common and soprano pipistrelle passes, very rare passes of noctule and Myotis bats, and no continuous foraging activity.
- 4.1.4 Through all three transect surveys bat activity was focussed around the derelict building (and adjacent scrub) in the south of the site, the tree and scrub line along the south-western site boundary, and the off-site River Taff. The transect survey results suggest small numbers of common pipistrelle were foraging in these areas almost continuously during the first 90 minutes or so after sunset.
- 4.1.5 A more detailed analysis of the survey findings and an evaluation of the importance of the site for those species recorded is provided below.

4.2 Common and Soprano Pipistrelle bats

- 4.2.1 The large majority of species recorded were common pipistrelle with much smaller numbers of soprano pipistrelle. Both species are common and widespread and will occur frequently in the local area and beyond. While they are listed under Section 42 of the NERC as priority species, in relation to other bat species they are considered to be of relatively low conservation interest.
- 4.2.2 The area of highest activity was around the southern and south-western part of the site with frequent common pipistrelle foraging associated with the overgrown ornamental scrub and the treeline and scrub on the south-west boundary. This area is comparatively dark, sheltered and vegetated compared to the rest of the site and therefore offers the most suitable potential foraging habitat. There is also good connectivity with scrub lined in the banks of the River Taff to the south.
- 4.2.3 Occasional common pipistrelle passes and foraging were detected on the eastern boundary, but most activity in this area was associated with the off-site river corridor. Frequent common pipistrelle foraging was recorded over the river during the transect surveys and the scrub lined section of river adjacent to the site offers good foraging habitat for pipistrelle species.
- 4.2.4 Elevated levels of bat activity during July remote recording on the eastern side of the site may also partly reflect the importance of the River Taff for bats. Within the wider local area, the

narrow scrub and tree lined river corridor is likely to be relatively well used by bats compared to the industrial development that flanks the river corridor.

- 4.2.5 The on-site habitats are of low quality compared to nearby off-site habitats. Extensive broadleaved woodland, scrub and grassland to the west offers substantially higher quality bat foraging habitats. The on-site habitats are a very small proportion of this much wider extent of habitat. In this context the site is unlikely to be of significant value for local populations of pipistrelle bats.
- 4.2.6 A specific emergence survey of the derelict office building was not part of the survey scope. However, early activity common and soprano pipistrelle during the surveys close to the derelict office building indicates that both pipistrelle species are very likely to roost in the building.

4.3 Noctule

- 4.3.1 Noctule bats were recorded very rarely except during remote recording in July when the number of passes was approximately a quarter to a third the number of pipistrelle passes. Low numbers of noctule passes were recorded in June and September. The much higher number of noctule passes in July may reflect the proximity of the recorded to the river corridor with likely foraging over river and use of this feature as a flight line.
- 4.3.2 The on-site habitats are of low value for this species and extensive high value habitat is present off-site to the west.
- 4.3.3 The numbers of passes by noctule bat indicate the site is not a regular or frequently used foraging area of flight line for noctule bats. The site is therefore considered to be of low importance for this species. In comparison the adjoining section of the River Taff is of higher value providing a potential foraging ground and flight line.

4.4 Other Bat Species

- 4.4.1 Extremely small numbers of passes by Myotis and serotine / Leisler's during remote recording indicate the site has very low value for these species.

5 Conclusion and Recommendations

5.1 Conclusion

- 5.1.1 During the surveys undertaken in summer 2016 the site was utilised by five bat species, specifically: common pipistrelle, soprano pipistrelle, noctule, Myotis and Leisler's.
- 5.1.2 The large majority of bats passes registered were of common pipistrelle with small numbers of soprano pipistrelle and noctule. Other species were recorded very rarely.
- 5.1.3 Key areas for bat activity were the site boundaries and associated features, specifically
- Overgrown scrub at the southern end of the site;
 - The derelict office building and adjacent scrub;
 - Scrub and trees along the southwestern site boundary; and,
 - The off-site River Taff corridor to the west.
- 5.1.4 Although moderate levels of common pipistrelle activity were detected, there is extensive higher quality bat foraging habitat present in the in the local landscape. Given the small extent and low quality of the on-site habitats the site is not considered to be of significant value for local populations of common pipistrelle bats.
- 5.1.5 The derelict office building is considered likely to be utilised at least as an occasional day roost by at least by an individual or very small numbers of pipistrelle bats.
- 5.1.6 With small numbers of soprano pipistrelle passes recorded, the site is not considered to be of significant value for the local population of soprano pipistrelle bats.
- 5.1.7 Noctule bats fly over the site in small numbers and the on-site habitats are of low quality for this and with extensive off-site habitat available the site is considered to be of very low importance for this species.
- 5.1.8 The adjacent river Taff provides high value habitat for noctule with frequent passes recorded over the off-site river.
- 5.1.9 With very low numbers of passes the site is considered to be at best of very low importance for myotis and serotine / Leisler's bat.

5.2 Recommendations

- 5.2.1 The derelict office building potentially supports roosting pipistrelle bats and appropriate measures should be taken to ensure that the demolition of the building is carried out lawfully with regard to UK and EU legislation protecting bats and their roosts.
- 5.2.2 A daytime inspection of the building (The Countryman Wildlife Consultancy 2015) concluded that bats are likely to roost in the building and was recommended that soft demolition / soft

stripping should be carried out under the supervision of a licensed bat ecologist. This should be undertaken during the main activity season, ideally between April and May or September.

- 5.2.3 In the event that a bat roost, or any signs of use by roosting bats are found during the licensed bat ecologist inspections and initial stages of soft stripping, then appropriate measures would need to be taken to secure an NRW derogation licence to enable demolition to proceed lawfully.
- 5.2.4 The site layout / masterplan for any future development should take into account the areas of highest value for bats within the site and also avoid indirect impacts on adjacent off-site areas.
- 5.2.5 The loss of overgrown scrub within the southern end of the site will be unavoidable. Boundary scrub in this area, and the scrub and tree line along the southwestern site boundary should be retained to maintain areas of highest bat activity.
- 5.2.6 Any lighting scheme implemented as part of the development should minimise light spill onto the retained scrub and trees on the southern and southwestern site boundary. Light spill should also be controlled along the eastern site boundary where the site adjoins the River Taff SINC.
- 5.2.7 Ideally there should be a maximum light level of 1 lux on the boundary vegetation and along the eastern boundary line to ensure appropriate light levels of boundary and off site foraging features are maintained.
- 5.2.8 Lighting should make use of low pressure sodium or LED lighting which has a low attractiveness to insects (Fure 2012) and will therefore have the least impact on prey abundance in adjacent foraging areas.

References

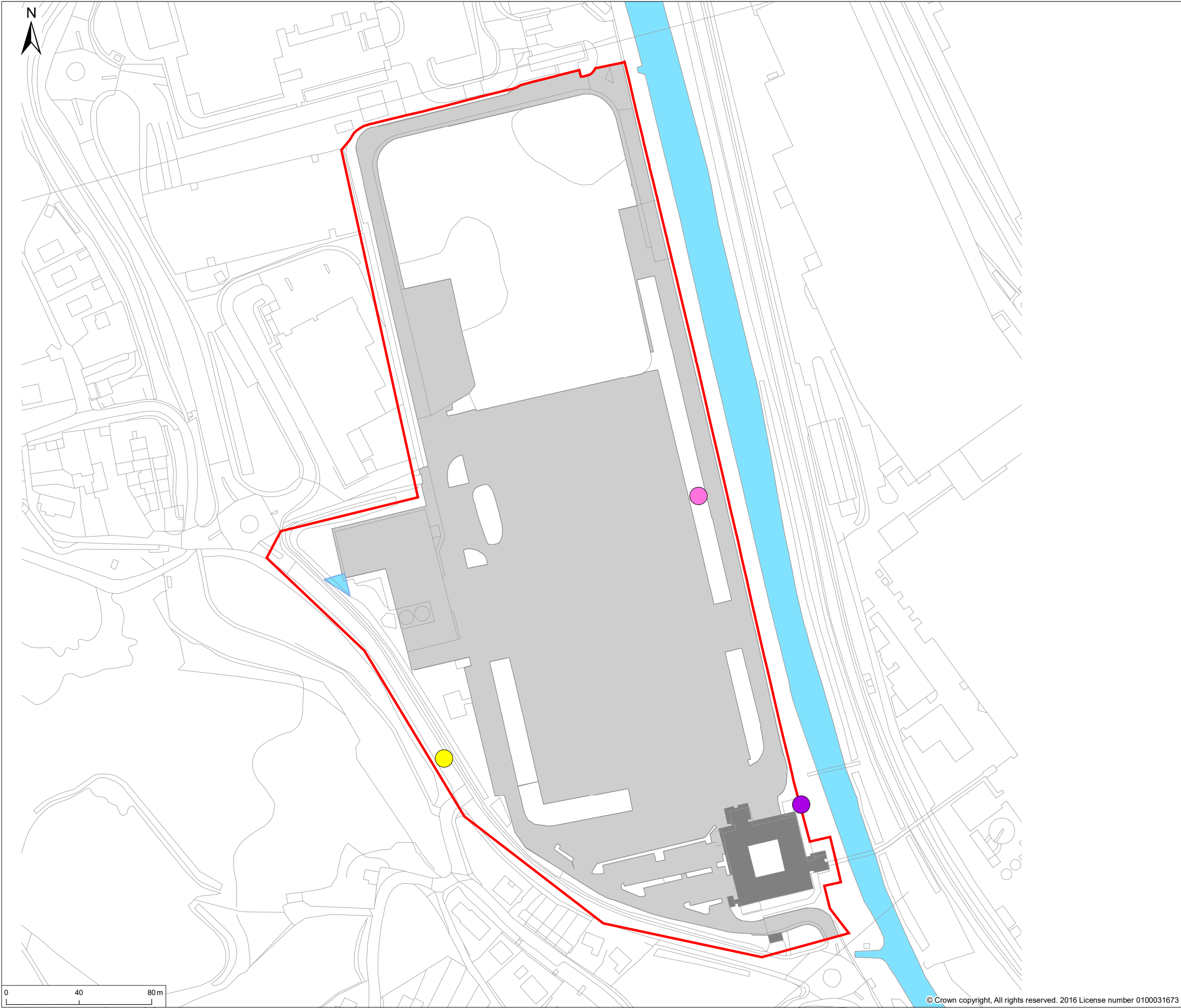
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Drawings



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Notes

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- Legend**
- Site Boundary
- Remote Detector Locations**
- 9th-13th June - SM4
 - 21st-25th July - SM4
 - 2nd-7th September - Anabat Express

Rev	Description	Date	Initial	Checked



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Client **RPS SW PLANNING CARDIFF**

Project **DRAGON PARC**

Title **REMOTE BAT DETECTOR
RECORDING PLAN**

Status	Drawn By	PM/Checked By
FINAL	MD	PT

Job Ref	Scale @ A3	Date Created
JER6710	1:2,000	SEP 16

Drawing Number	Rev
JER6710-ECO-003	-

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Appendices

Remote Recording Results

Remote Recording Graphs Legend

Cp – Common pipistrelle *Pipistrellus pipistrellus*

Sp – Soprano pipistrelle *Pipistrellus pygmaeus*

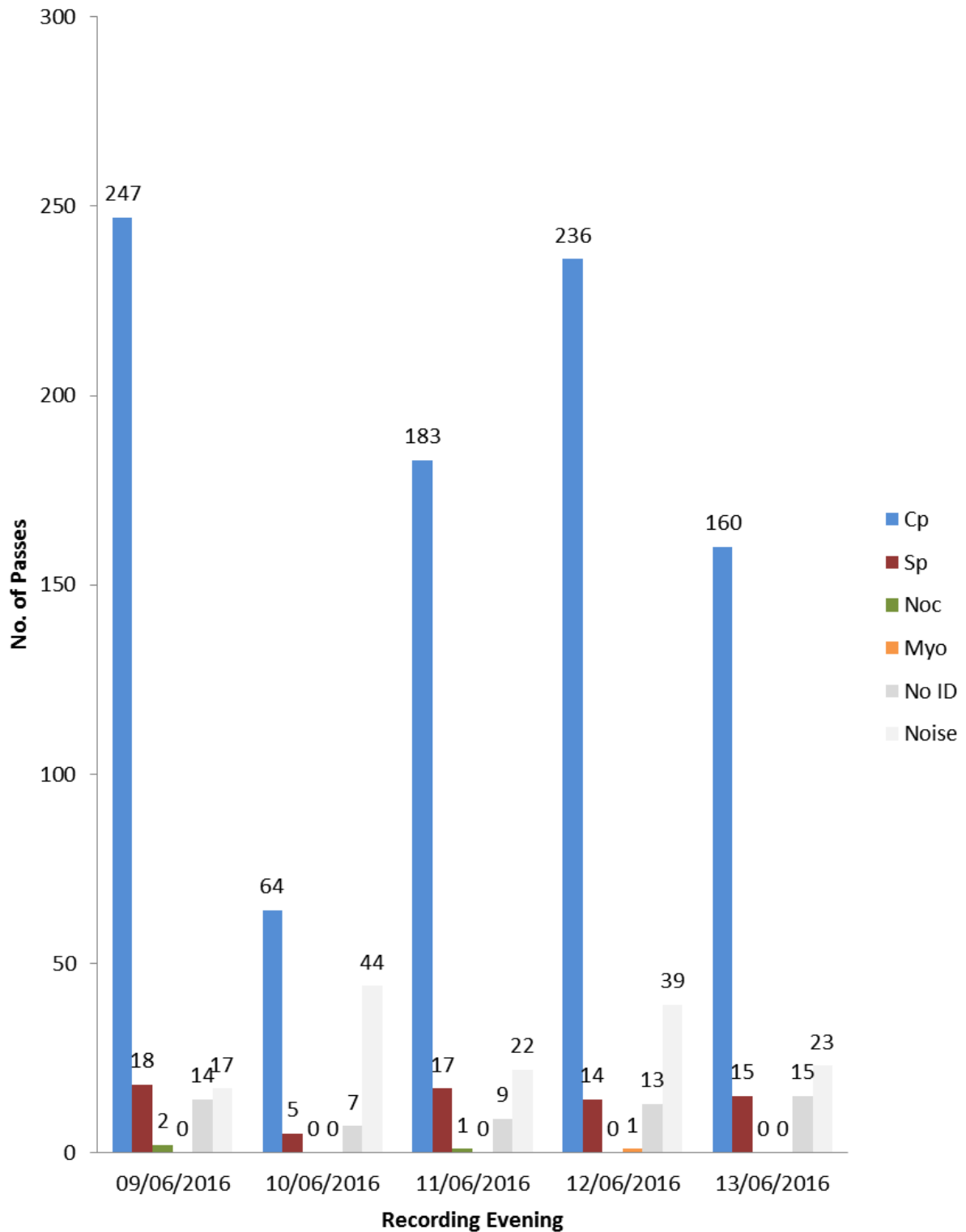
Noc – Noctule *Nyctalus noctula*

Nyct – *Nyctalus* sp.

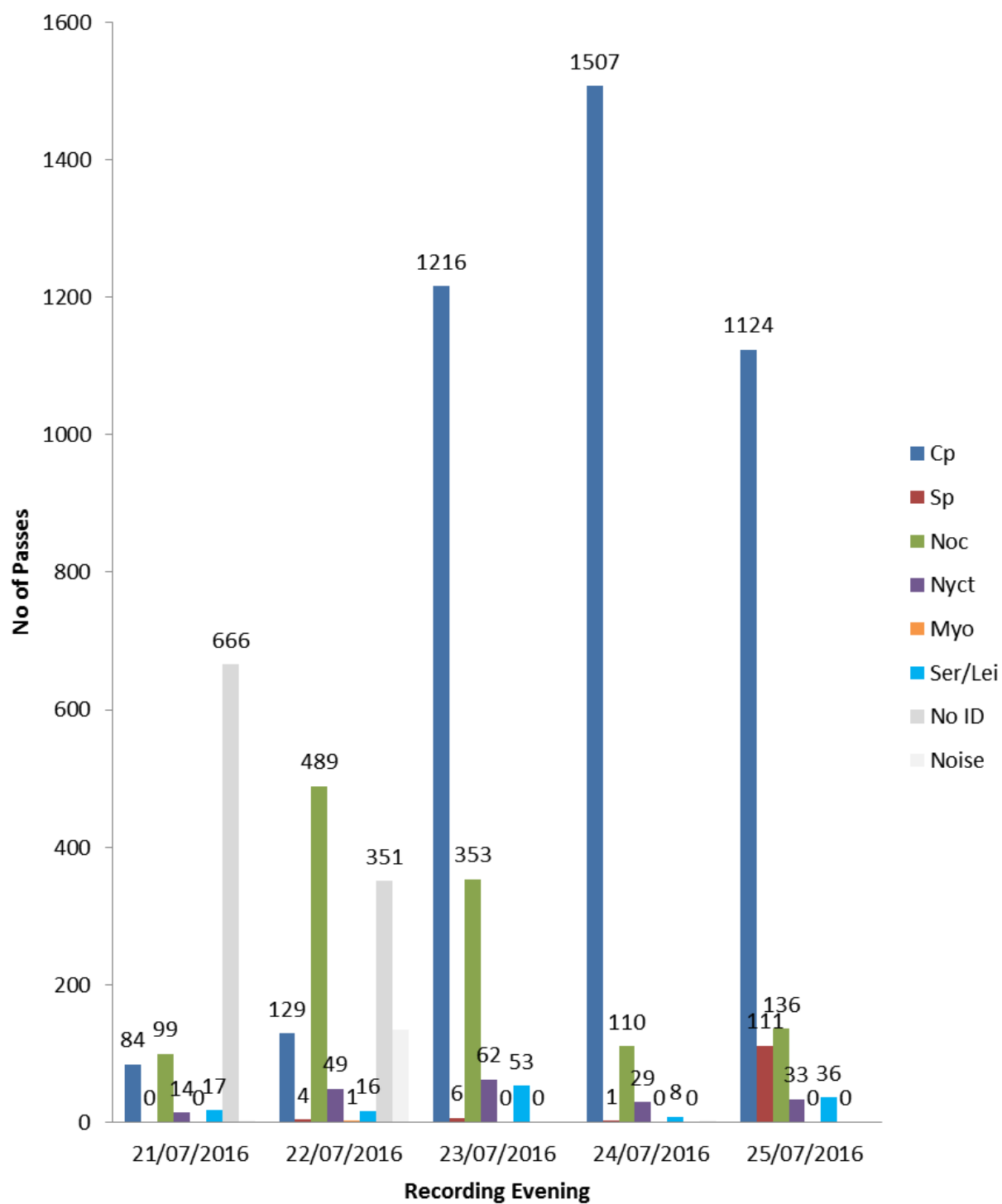
Myo – *Myotis* sp.

Ser/Lei – Serotine / Leisler's

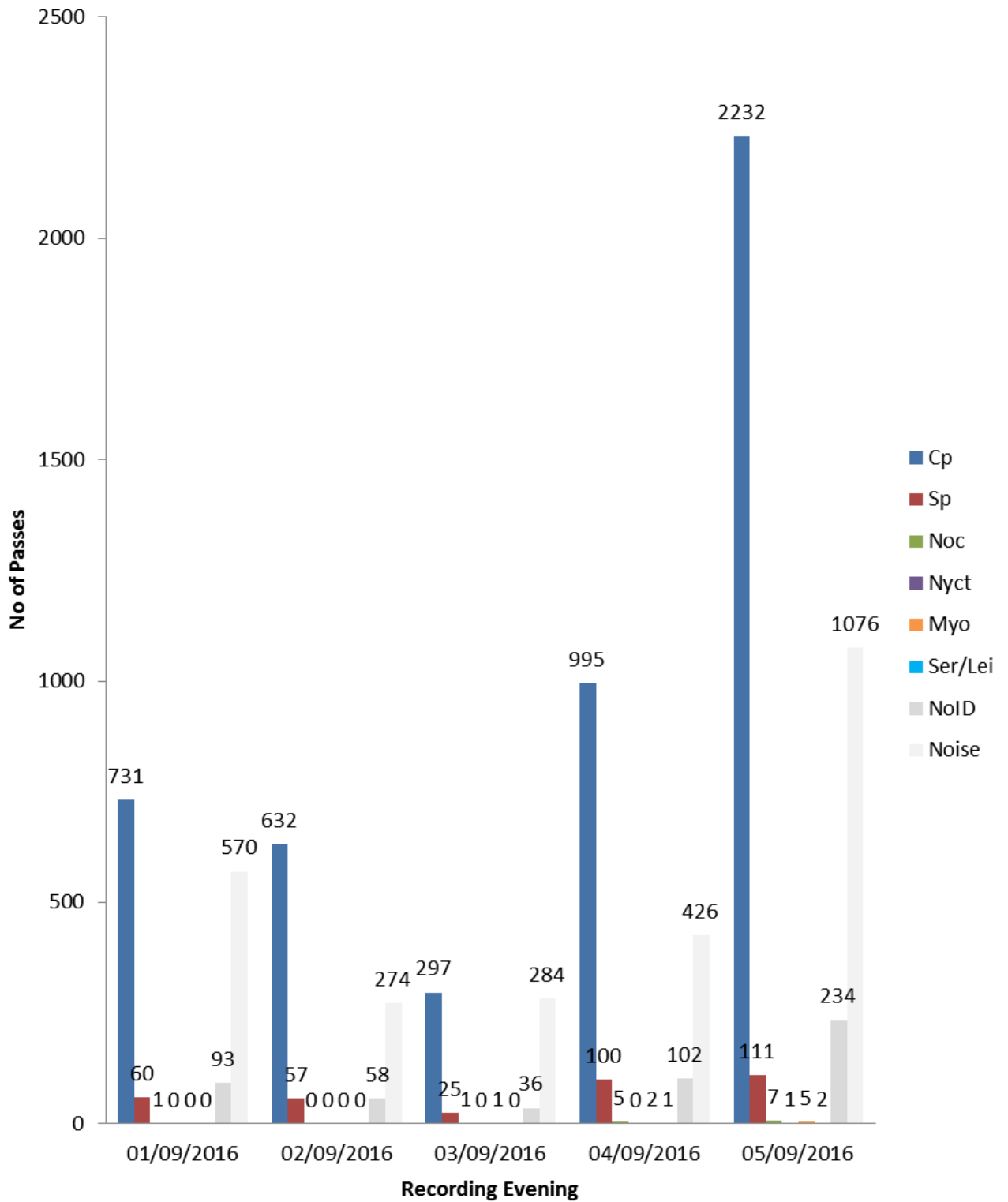
June 2016 Remote Recording



July 2016 Remote Recording



September 2016 Remote Recording



2016 Remote Recording Total Species Counts

