Appendix 7.1: Static Detector Monitoring Results

T1 Spring 2019

	PIPI	TOTAL	BAI
10 May	-	0	0
11 May	-	0	0
12 May	-	0	0
13 May	-	0	0
14 May	-	0	0
15 May	-	0	0
16 May	-	0	0
17 May	-	0	0
18 May	-	0	0
19 May	7	7	0.875
Totals	**7**	**7**	**0.088**

All nights data combined – ten nights at 8 hours recording time per night = 80 hours recording

	PIPI	TOTAL
Total Passes	7	7
Passes (per/hr)	**0.09**	**0.088**

T1 Summer 2019

	NYLE	PIPI	PIPY	TOTAL	BAI
17 Jul	-	-	-	0	0
18 Jul	-	-	-	0	0
19 Jul	-	-	-	0	0
20 Jul	2	2	-	4	
21 Jul	-	-	-	0	0
22 Jul	22	-	-	22	2.9
23 Jul	-	1	-	1	0.13
24 Jul	-	-	-	0	0
25 Jul	-	-	-	0	0
26 Jul	3	5	1	9	1.2
Totals	**27**	**8**	**1**	**36**	**0.48**

All nights data combined – ten nights at 7.5 hours recording time per night = 75 hours recording

	NYLE	PIPI	PIPY	TOTAL
Total Passes	27	8	1	36
Passes (per/hr)	**0.36**	**0.107**	**0.013**	**0.48**

T1 Autumn 2019

26 Sept – 05 Oct	NO BATS RECORDED

T2 Spring 2019

	NYLE	TOTAL	BAI
10 May	-	0	0
11 May	-	0	0
12 May	-	0	0
13 May	-	0	0
14 May	-	0	0
15 May	-	0	0
16 May	-	0	0
17 May	1	1	0.125
18 May	-	0	0
19 May	-	0	0
Totals	**1**	**1**	**0.013**

All nights data combined – ten nights at 8 hours recording time per night = 80 hours recording

	NYLE	TOTAL
Total Passes	1	1
Passes (per/hr)	**0.013**	**0.013**

T2 Autumn 2019

	PIPI	PIPY	TOTAL	BAI
26 Sept	-	-	0	0
27 Sept	-	-	0	0
28 Sept	2	-	2	0.16
29 Sept	2	-	2	0.16
30 Sept	-	-	0	0
01 Oct	-	-	0	0
02 Oct	-	1	1	0.08
03 Oct	-	-	0	0
04 Oct	-	-	0	0
05 Oct	-	-	0	0
Totals	**4**	**1**	**5**	**0.04**

All nights data combined – ten nights at 12.5 hours recording time per night = 125 hours recording

	PIPI	PIPY	TOTAL
Total Passes	4	1	5
Passes (per/hr)	**0.032**	**0.008**	**0.04**

T2 Summer 2019

	NYLE	PIPI	PIPY	PINA	TOTAL	BAI
17 Jul	-	1	-	-	1	0.13
18 Jul	-	-	-	-	0	0
19 Jul	-	-	-	-	0	0
20 Jul	2	2	-	1	5	0.6
21 Jul	-	-	-	-	0	0
22 Jul	1	-	-	-	1	0.13
23 Jul	-	-	-	-	0	0
24 Jul	-	1	-	-	1	0.13
25 Jul	-	-	-	-	0	0
26 Jul	8	17	1	-	26	3.46
Totals	**11**	**21**	**1**	**1**	**34**	**0.45**

All nights data combined – ten nights at 7.5 hours recording time per night = 75 hours recording

	NYLE	PIPI	PIPY	PINA	TOTAL
Total Passes	11	21	1	1	34
Passes (per/hr)	**0.15**	**0.28**	**0.013**	**0.013**	**0.45**

T3 Spring 2019

10 – 19 May	NO BATS RECORDED

T3 Summer 2019

	NYLE	PIPI	PIPY	MYNA	MYDAU	TOTAL	BAI
17 Jul	1	-	-	-	-	1	0.13
18 Jul	-	8	-	-	-	8	1.06
19 Jul	-	-	-	-	-	0	0
20 Jul	6	16	-	1	-	23	3.06
21 Jul	1	-	-	-	-	1	0.13
22 Jul	3	-	-	-	-	3	0.4
23 Jul	22	4	-	-	-	26	3.46
24 Jul	16	6	1	1	-	24	3.2
25 Jul	3	2	-	-	-	5	0.6
26 Jul	6	23	2	-	1	32	4.26
Totals	**58**	**59**	**3**	**2**	**1**	**123**	**1.6**

All nights data combined – ten nights at 7.5 hours recording time per night = 75 hours recording

	NYLE	PIPI	PIPY	MYNA	MYDAU	TOTAL
Total Passes	58	59	3	2	1	123
Passes (per/hr)	**0.77**	**0.79**	**0.04**	**0.03**	**0.013**	**1.6**

T3 Autumn 2019

	NYLE	PIPI	PIPY	MYNA	PLAUR	TOTAL	BAI
26 Sept	-	5	2	-	-	7	0.56
27 Sept	-	-	-	1	1	2	0.16
28 Sept	-	10	-	-	-	10	0.8
29 Sept	1	32	10	1	-	44	3.52
30 Sept	-	-	2	-	-	2	0.16
01 Oct	-	-	-	-	-	0	0
02 Oct	1	3	-	-	-	4	0.32
03 Oct	-	1	-	1	-	2	0.16
04 Oct	-	2	-	-	-	2	0.16
05 Oct	-	-	-	1	-	1	0.08
Totals	**2**	**53**	**14**	**4**	**1**	**74**	**0.6**

All nights data combined – ten nights at 12.5 hours recording time per night = 125 hours recording

	NYLE	PIPI	PIPY	MYNA	PLAUR	TOTAL
Total Passes	2	53	14	4	1	74
Passes (per/hr)	**0.016**	**0.42**	**0.11**	**0.032**	**0.008**	**0.6**

T4 Spring 2019

	NYLE	PIPI	TOTAL	BAI
17 May	-	-	0	0
18 May	-	-	0	0
19 May	-	1	1	0.13
20 May	1	-	1	0.13
21 May	-	1	1	0.13
22 May	-	-	0	0
23 May	-	-	0	0
24 May	-	-	0	0
25 May	-	6	6	0.8
26 May	-	-	0	0
Totals	**1**	**8**	**9**	**0.12**

All nights data combined – ten nights at 7.5 hours recording time per night = 75 hours recording

	NYLE	PIPI	TOTAL
Total Passes	1	8	9
Passes (per/hr)	**0.013**	**0.11**	**0.12**

T4 Summer 2019

	NYLE	PIPI	PIPY	MYNA	MYDAU	TOTAL	BAI
17 Jul	1	-	-	-	-	1	0.13
18 Jul	2	5	-	-	-	7	0.93
19 Jul	-	-	-	-	-	0	0
20 Jul	5	-	-	-	-	5	0.6
21 Jul	-	-	-	11	-	11	1.46
22 Jul	1	-	1	-	-	2	0.26
23 Jul	1	1	-	-	-	2	0.26
24 Jul	6	2	-	5	1	14	1.86
25 Jul	3	-	-	1	1	5	0.6
26 Jul	8	12	-	-	-	20	2.6
Total	**27**	**20**	**1**	**17**	**2**	**67**	**0.9**

All nights data combined – ten nights at 7.5 hours recording time per night = 75 hours recording

	NYLE	PIPI	PIPY	MYNA	MYDAU	TOTAL
Total Passes	27	20	1	17	2	67
Passes (per/hr)	**0.36**	**0.27**	**0.013**	**0.23**	**0.016**	**0.9**

T4 Autumn 2019

	PIPI	MYNA	TOTAL	BAI
02 Oct	4	1	5	0.4
03 Oct	-	1	1	0.08
04 Oct	-	-	0	0
05 Oct	-	-	0	0
06 Oct	-	-	0	0
07 Oct	-	-	0	0
08 Oct	-	-	0	0
09 Oct	-	-	0	0
10 Oct	-	-	0	0
11 Oct	-	-	0	0
Totals	**4**	**2**	**6**	**0.048**

All nights data combined – ten nights at 12.5 hours recording time per night = 125 hours recording

	PIPI	MYNA	TOTAL
Total Passes	4	2	6
Passes (per/hr)	**0.032**	**0.016**	**0.048**

T5 Spring 2019

Passes (per/hr)	**0.008**	**0.008**

17 – 26 May	NO BATS RECORDED

T5 Summer 2019

	NYLE	PIPI	PIPY	PLAUR	TOTAL	BAI
17 Jul	-	-	-	-	0	0
18 Jul	6	-	-	-	6	0.8
19 Jul	-	-	-	-	0	0
20 Jul	15	-	-	1	16	2.13
21 Jul	11	-	-	-	11	1.46
22 Jul	-	-	-	-	0	0
23 Jul	2	-	-	-	2	0.26
24 Jul	6	1	-	-	7	0.93
25 Jul	-	-	-	-	0	0
26 Jul	6	2	1	-	9	1.2
Totals	**46**	**3**	**1**	**1**	**51**	**0.68**

All nights data combined – ten nights at 7.5 hours recording time per night = 75 hours recording

	NYLE	PIPI	PIPY	PLAUR	TOTAL
Total Passes	46	3	1	1	51
Passes (per/hr)	**0.61**	**0.04**	**0.013**	**0.013**	**0.68**

T5 Autumn 2019

	NYLE	TOTAL	BAI
02 Oct	-	0	0
03 Oct	-	0	0
04 Oct	-	0	0
05 Oct	-	0	0
06 Oct	-	0	0
07 Oct	1	1	0.08
08 Oct	-	0	0
09 Oct	-	0	0
10 Oct	-	0	0
11 Oct	-	0	0
Totals	**1**	**1**	**0.008**

All nights data combined – ten nights at 12.5 hours recording time per night = 125 hours recording

	NYLE	TOTAL
Total Passes	1	1

T6 Spring 2019

	NYLE	PIPI	TOTAL	BAI
17 May	-	-	0	0
18 May	-	-	0	0
19 May	-	4	4	0.53
20 May	-	-	0	0
21 May	-	-	0	0
22 May	-	-	0	0
23 May	-	-	0	0
24 May	-	-	0	0
25 May	2	1	3	0.4
26 May	-	-	0	0
Totals	**2**	**5**	**7**	**0.093**

All nights data combined – ten nights at 7.5 hours recording time per night = 75 hours recording

	NYLE	PIPI	TOTAL
Total Passes	2	5	7
Passes (per/hr)	**0.03**	**0.07**	**0.093**

T6 Autumn 2019

	NYLE	MYNA	TOTAL	BAI
02 Oct	1	-	1	0.08
03 Oct	-	-	0	0
04 Oct	-	-	0	0
05 Oct	-	-	0	0
06 Oct	-	-	0	0
07 Oct	-	-	0	0
08 Oct	-	-	0	0
09 Oct	-	1	1	0.08
10 Oct	-	-	0	0
11 Oct	-	-	0	0
Totals	**1**	**1**	**2**	**0.16**

All nights data combined – ten nights at 12.5 hours recording time per night = 125 hours recording

	NYLE	MYNA	TOTAL
Total Passes	1	1	2
Passes (per/hr)	**0.008**	**0.008**	**0.16**

T6 Summer 2019

	NYLE	PIPI	PIPY	TOTAL	BAI
17 Jul	-	1	-	1	0.13
18 Jul	11	-	-	11	1.46
19 Jul	5	-	-	5	0.6
20 Jul	2	1	-	3	0.4
21 Jul	1	-	-	1	0.13
22 Jul	1	-	-	1	0.13
23 Jul	-	-	-	0	0
24 Jul	3	-	-	3	0.4
25 Jul	5	-	-	5	0.6
26 Jul	11	6	1	18	2.4
Totals	**39**	**8**	**1**	**48**	**0.64**

All nights data combined – ten nights at 7.5 hours recording time per night = 75 hours recording

	NYLE	PIPI	PIPY	TOTAL
Total Passes	39	8	1	48
Passes (per/hr)	**0.52**	**0.11**	**0.013**	**0.64**

T7 Spring 2019

	NYLE	TOTAL	BAI
09 May	1	1	0.125
10 May	-	0	0
11 May	-	0	0
12 May	-	0	0
13 May	-	0	0
14 May	-	0	0
15 May	-	0	0
16 May	-	0	0
17 May	-	0	0
18 May	-	0	0
Totals	**1**	**1**	**0.013**

All nights data combined – ten nights at 8 hours recording time per night = 80 hours recording

	NYLE	TOTAL
Total Passes	1	1
Passes (per/hr)	**0.013**	**0.013**

T7 Summer 2019

	NYLE	PIPI	PIPY	MYDAU	TOTAL	BAI
01 Aug	10	2	-	-	12	1.41
02 Aug	9	119	11	1	140	16.47
03 Aug	2	5	-	-	7	0.82
04 Aug	1	-	-	-	1	0.12
05 Aug	18	8	-	-	26	3.06
06 Aug	5	9	-	-	14	1.65
07 Aug	22	17	1	-	40	4.71
08 Aug	-	-	-	-	0	0
09 Aug	-	-	-	-	0	0
10 Aug	-	-	-	-	0	0
Totals	**66**	**160**	**12**	**1**	**239**	**2.8**

All nights data combined – ten nights at 8.5 hours recording time per night = 85 hours recording

	NYLE	PIPI	PIPY	MYDAU	TOTAL
Total Passes	66	160	12	1	239
Passes (per/hr)	**0.78**	**1.88**	**0.14**	**0.01**	**2.8**

T7 Autumn 2019

	NYLE	PLAUR	TOTAL	BAI
19 Sept	3	-	3	0.25
20 Sept	2	1	3	0.25
21 Sept	1	-	1	0.083
22 Sept	-	-	0	0
23 Sept	-	-	0	0
24 Sept	-	-	0	0
25 Sept	-	-	0	0
26 Sept	-	-	0	0
27 Sept	-	-	0	0
28 Sept	-	-	0	0
Totals	**6**	**1**	**7**	**0.058**

All nights data combined – ten nights at 12 hours recording time per night = 120 hours recording

	NYLE	PLAUR	TOTAL
Total Passes	6	1	7
Passes (per/hr)	**0.05**	**0.008**	**0.058**

Static Monitoring Results 2019 – Carnbuck Windfarm

T8 Spring 2019

	MYNA	TOTAL	BAI
09 May	-	0	0
10 May	-	0	0
11 May	1	1	0.125
12 May	-	0	0
13 May	-	0	0
14 May	-	0	0
15 May	-	0	0
16 May	-	0	0
17 May	-	0	0
18 May	-	0	0
Totals	**1**	**1**	**0.013**

All nights data combined – ten nights at 8 hours recording time per night = 80 hours recording

	MYNA	TOTAL
Total Passes	1	1
Passes (per/hr)	**0.013**	**0.013**

T8 Autumn 2019

	NYLE	PIPI	PIPY	TOTAL	BAI
19 Sept	-	-	-	0	0
20 Sept	-	-	-	0	0
21 Sept	-	-	-	0	0
22 Sept	-	4	-	4	0.3
23 Sept	-	2	1	3	0.25
24 Sept	4	11	-	15	1.25
25 Sept	-	-	-	0	0
26 Sept	-	-	-	0	0
27 Sept	-	-	-	0	0
28 Sept	-	-	-	0	0
Totals	**4**	**17**	**1**	**22**	**0.18**

All nights data combined – ten nights at 12 hours recording time per night = 120 hours recording

	NYLE	PIPI	PIPY	TOTAL
Total Passes	4	17	1	22
Passes (per/hr)	**0.03**	**0.14**	**0.008**	**0.18**

T8 Summer 2019

	NYLE	PIPI	PIPY	MYNA	TOTAL	BAI
01 Aug	6	1	-	-	7	0.82
02 Aug	5	11	3	-	19	2.24
03 Aug	2	-	-	1	3	0.35
04 Aug	1	-	-	-	1	0.18
05 Aug	11	4	1	-	16	1.88
06 Aug	27	6	-	-	33	3.88
07 Aug	29	17	-	-	46	5.41
08 Aug	7	-	-	-	7	0.82
09 Aug	-	-	-	-	0	0
10 Aug	-	-	-	-	0	0
Totals	**88**	**39**	**4**	**1**	**132**	**1.6**

All nights data combined – ten nights at 8.5 hours recording time per night = 85 hours recording

	NYLE	PIPI	PIPY	MYNA	TOTAL
Total Passes	88	39	4	1	132
Passes (per/hr)	**1.04**	**0.46**	**0.05**	**0.01**	**1.6**

T9 Spring 2019

	NYLE	PIPY	MYNA	TOTAL	BAI
09 May	-	-	-	0	0
10 May	-	-	-	0	0
11 May	-	-	-	0	0
12 May	-	-	-	0	0
13 May	2	-	1	3	0.375
14 May	-	1	1	2	0.25
15 May	-	-	-	0	0
16 May	-	-	-	0	0
17 May	-	-	-	0	0
18 May	1	-	-	1	0.125
Totals	**3**	**1**	**2**	**6**	**0.075**

All nights data combined – ten nights at 8 hours recording time per night = 80 hours recording

	NYLE	PIPY	MYNA	TOTAL
Total Passes	3	1	2	6
Passes (per/hr)	**0.038**	**0.013**	**0.03**	**0.075**

T9 Autumn

	PIPI	PIPY	MYDAU	TOTAL	BAI
19 Sept	2	2	1	5	0.416
20 Sept	2	-	-	2	0.16
21 Sept	-	-	-	0	0
22 Sept	3	-	-	3	0.25
23 Sept	3	-	-	3	0.25
24 Sept	14	3	1	18	1.5
25 Sept	-	-	-	0	0
26 Sept	-	-	-	0	0
27 Sept	-	-	-	0	0
28 Sept	1	-	-	1	0.083
Totals	**25**	**5**	**2**	**32**	**0.26**

All nights data combined – ten nights at 12 hours recording time per night = 120 hours recording

	PIPI	PIPY	MYDAU	TOTAL
Total Passes	25	5	2	32
Passes (per/hr)	**0.21**	**0.04**	**0.016**	**0.26**

T9 Summer

	NYLE	PIPI	PIPY	MYNA	TOTAL	BAI
01 Aug	11	-	3	-	14	1.65
02 Aug	7	38	-	1	46	5.41
03 Aug	2	-	-	-	2	0.24
04 Aug	-	-	1	-	1	0.118
05 Aug	4	3	1	-	8	0.941
06 Aug	2	8	-	-	10	1.176
07 Aug	5	1	1	-	7	0.823
08 Aug	1	-	-	-	1	0.118
09 Aug	-	-	-	-	0	0
10 Aug	-	-	-	-	0	0
Totals	**32**	**50**	**6**	**1**	**89**	**1.05**

All nights data combined – ten nights at 8.5 hours recording time per night = 85 hours recording

	NYLE	PIPI	PIPY	MYNA	TOTAL
Total Passes	32	50	6	1	89
Passes (per/hr)	**0.38**	**0.59**	**0.07**	**0.01**	**1.05**

T10 Spring

	NYLE	MYDAU	TOTAL	BAI
09 May	-	-	0	0
10 May	-	-	0	0
11 May	-	-	0	0
12 May	-	1	1	0.125
13 May	-	-	0	0
14 May	-	-	0	0
15 May	1	-	1	0.125
16 May	-	-	0	0
17 May	-	-	0	0
18 May	2	-	2	0.25
Totals	**3**	**1**	**4**	**0.05**

All nights data combined – ten nights at 8 hours recording time per night = 80 hours recording

	NYLE	MYDAU	TOTAL
Total Passes	3	1	4
Passes (per/hr)	**0.04**	**0.013**	**0.05**

T10 Autumn

	NYLE	PIPI	PIPY	MYDAU	TOTAL	BAI
19 Sept	-	4	-	-	4	0.3
20 Sept	-	-	-	-	0	0
21 Sept	-	-	-	-	0	0
22 Sept	-	2	2	-	4	0.3
23 Sept	1	1	-	-	2	0.16
24 Sept	-	16	1	-	17	1.416
25 Sept	-	-	-	2	2	0.16
26 Sept	-	-	-	-	0	0
27 Sept	-	-	-	-	0	0
28 Sept	-	-	-	-	0	0
Totals	**1**	**23**	**3**	**2**	**29**	**0.24**

All nights data combined – ten nights at 12 hours recording time per night = 120 hours recording

	NYLE	PIPI	PIPY	MYDAU	TOTAL
Total Passes	1	23	3	2	29
Passes (per/hr)	**0.008**	**0.20**	**0.03**	**0.016**	**0.24**

T10 Summer

	NYLE	PIPI	PIPY	TOTAL	BAI
01 Aug	-	-	-	0	0
02 Aug	3	5	2	10	1.176
03 Aug	1	1	-	2	0.235
04 Aug	-	-	-	0	0
05 Aug	1	1	-	2	0.235
06 Aug	6	5	-	11	1.294
07 Aug	15	5	-	20	2.353
08 Aug	-	-	-	0	0
09 Aug	-	-	-	0	0
10 Aug	-	-	-	0	0
Totals	**26**	**17**	**2**	**45**	**0.53**

All nights data combined – ten nights at 8.5 hours recording time per night = 85 hours recording

	NYLE	PIPI	PIPY	TOTAL
Total Passes	26	17	2	45
Passes (per/hr)	**0.31**	**0.2**	**0.02**	**0.53**

T11 Spring

	NYLE	MYDAU	TOTAL	BAI
09 May	-	-	0	0
10 May	-	-	0	0
11 May	1	-	1	0.125
12 May	-	-	0	0
13 May	-	-	0	0
14 May	-	-	0	0
15 May	-	1	1	0.125
16 May	-	-	0	0
17 May	-	-	0	0
18 May	-	-	0	0
Totals	**1**	**1**	**2**	**0.025**

All nights data combined – ten nights at 8 hours recording time per night = 80 hours recording

	NYLE	MYDAU	TOTAL
Total Passes	1	1	2
Passes (per/hr)	**0.013**	**0.013**	**0.025**

T11 Autumn

	PIPI	MYNA	TOTAL	BAI
19 Sept	4	-	4	0.3
20 Sept	-	-	0	0
21 Sept	-	-	0	0
22 Sept	-	-	0	0
23 Sept	2	-	2	0.16
24 Sept	-	-	0	0
25 Sept	-	-	0	0
26 Sept	-	-	0	0
27 Sept	-	1	1	0.083
28 Sept	-	-	0	0
Totals	**6**	**1**	**7**	**0.058**

All nights data combined – ten nights at 12 hours recording time per night = 120 hours recording

	PIPI	MYNA	TOTAL
Total Passes	6	1	7
Passes (per/hr)	**0.05**	**0.008**	**0.058**

T11 Summer

	NYLE	PIPI	PIPY	PLAUR	TOTAL	BAI
04 Aug	-	-	-	-	0	0
05 Aug	1	5	1	-	7	0.824
06 Aug	8	6	1	-	15	1.765
07 Aug	11	5	-	-	16	1.882
08 Aug	1	-	-	-	1	0.118
09 Aug	1	-	-	-	1	0.118
10 Aug	-	-	-	-	0	0
11 Aug	-	-	-	1	1	0.118
12 Aug	5	1	-	-	6	0.706
13 Aug	1	-	-	-	1	0.118
Totals	**28**	**17**	**2**	**1**	**48**	**0.57**

All nights data combined – ten nights at 8.5 hours recording time per night = 85 hours recording

	NYLE	PIPI	PIPY	PLAUR	TOTAL
Total Passes	28	17	2	1	48
Passes (per/hr)	**0.33**	**0.2**	**0.02**	**0.01**	**0.57**

T12 Spring

	NYLE	MYDAU	TOTAL	BAI
09 May	-	-	0	0
10 May	-	-	0	0
11 May	-	-	0	0
12 May	1	-	1	0.125
13 May	-	-	0	0
14 May	-	2	2	0.25
15 May	-	1	1	0.125
16 May	-	-	0	0
17 May	-	1	1	0.125
18 May	-	-	0	0
Totals	**1**	**4**	**5**	**0.63**

All nights data combined – ten nights at 8 hours recording time per night = 80 hours recording

	NYLE	MYDAU	TOTAL
Total Passes	1	4	5
Passes (per/hr)	**0.013**	**0.05**	**0.63**

T12 Autumn

	NYLE	PIPI	PIPY	TOTAL	BAI
19 Sept	1	4	-	5	0.416
20 Sept	-	-	-	0	0
21 Sept	-	-	-	0	0
22 Sept	-	1	1	2	0.16
23 Sept	-	2	-	2	0.16
24 Sept	-	13	4	17	1.416
25 Sept	-	-	-	0	0
26 Sept	-	-	-	0	0
27 Sept	-	-	-	0	0
28 Sept	-	2	-	2	0.16
Totals	**1**	**22**	**5**	**28**	**0.23**

All nights data combined – ten nights at 12 hours recording time per night = 120 hours recording

	NYLE	PIPI	PIPY	TOTAL
Total Passes	1	22	5	28
Passes (per/hr)	**0.008**	**0.18**	**0.04**	**0.23**

T12 Summer

	NYLE	PIPI	PIPY	TOTAL	BAI
04 Aug	-	-	-	0	0
05 Aug	1	3	-	4	0.471
06 Aug	2	10	1	13	1.529
07 Aug	45	6	-	51	6
08 Aug	1	-	-	1	0.118
09 Aug	-	-	-	0	0
10 Aug	-	-	-	0	0
11 Aug	1	1	-	2	0.235
12 Aug	1	2	-	3	0.353
13 Aug	-	-	-	0	0
Totals	**51**	**22**	**1**	**74**	**0.87**

All nights data combined – ten nights at 8.5 hours recording time per night = 85 hours recording

	NYLE	PIPI	PIPY	TOTAL
Total Passes	51	22	1	74
Passes (per/hr)	**0.6**	**0.26**	**0.01**	**0.87**

Appendix 7.2 – Badger and Otter Survey Report: Provided separately as Confidential Appendix

Appendix 7.3: Common Lizard Survey Report

Executive Summary

This is a brief summary of survey results. For full details please read the report in its entirety.

- Common lizards *Zootoca vivipara*, were found to be present on the proposed development site and were assessed as being of low density.

- A mitigation plan has been proposed to negate potential adverse impacts of the proposed development on the local common lizard population.

Introduction

1. Blackstaff Ecology Ltd was appointed by RES UK and Ireland Ltd to conduct ecological surveys to inform the EcIA (Ecological Impact Assessment) for the proposed Carnbuck Windfarm, including surveys for common lizard (*Zootoca vivipara*).

2. The location of the site and habitat present suggested that there was the potential for common lizards to be present on the site or in the immediate environs surrounding.

3. The purpose of the survey was to ascertain whether common lizards were present within the boundary of the application site and, if present, to determine the distribution and density of each species. This information will identify the potential for the proposed installation to have adverse impacts upon the local reptile population and inform any mitigation measures required.

4. Common lizard is a protected species in Northern Ireland, and are therefore protected from being killed, injured or taken. If this species is present on site, then measures must be taken to protect them from any potential negative impacts of the development.

5. The construction phase of a wind farm installation has the potential to negatively impact on the local reptile population via disturbance and the removal of habitat. However, if suitable mitigation measures are implemented and carried out effectively, the impact of this project on the species in question is likely to be not significant.

Statement of Authority

6. Field surveys for common lizard were conducted by Cormac Loughran, while refugia emplacement was carried out by Philip Leathem. This report was also prepared by Cormac Loughran CEnv MCIEEM MSc.

Methodology

Common Lizard

7. A common lizard survey was undertaken in accordance with the NIEA survey specifications (NIEA 2017[1]) in order to establish the presence of common lizard within the survey site.

8. In addition to the NIEA methodology, consideration was also given to the Draft survey protocols for the British herpetofauna. The latter document references (Sewell et al. 2012) who recommend that at least 30 artificial refugia should be deployed to determine for presence or absence. This number is not dependent on of the size of site, as long as the refugia are positioned appropriately.

9. Therefore, 30 artificial refugia were deployed were also placed around suitable parts of the site which could be safely accessed (see Figure 7.3 - Common Lizard Survey Results). The transect also took account of suitable habitat within or adjacent to the construction corridor. The following was applied to the emplacement of refugia;

    a. Choose sunny locations away from public view and livestock;

[1] https://www.daera-ni.gov.uk/publications/common-lizard-surveys-specifications

b. Press refugia down close to the ground;

c. Use deep cover or edge of dense vegetation;

d. Do not deploy on bare ground/sparse cover;

e. Lift and replace refugia carefully taking care not to squash retreating animals.

10. Surveys were carried out during suitable weather conditions (as above), and focussed during May & September. The surveys were 2-3 hours in duration and three visits were made (with the first visit at least a week after the refugia were laid).

11. The surveyor incorporated transects by walking slowly and scanning the ground 3-4 m in front for the presence of basking lizards when travelling between artificial refugia.

Results

Common Lizard

Table 1 - Dates, Times, Meteorological Conditions and Results of the Common Lizard Surveys

Date/Time	Weather	Results
13/05/19	13°C Some cloud but mostly clear, intermittent light showers and sunny spells	6 lizards (5 from refugia; 1 along the walked transect)
12/09/19	14°C Some cloud but mostly clear and sunny spells	10 (7 recorded from refugia; 3 recorded along the walked transect)
19/09/19	14°C sunny and calm	11 (10 recorded from refugia; 1 recorded along the walked transect)

Discussion

12. A maximum total of 10 adult lizards were recorded using a total of nine refugia (see Figure 7.3). The results of the common lizard surveys reveal a population score of 2 (good population[2]) (5-20 individuals recorded). It is likely that the habitats surrounding T6 as well as adjacent to T7, T9 and T11 are optimal habitat for this species. Whereas the habitats surrounding T1 – T5 are poorer quality habitat for common lizard (i.e., more heavily grazed). Finally, the habitats surrounding T10 and T12 are likely to be less optimal (due to heavier sheep grazing) but that lizards are likely to be present (at lower population densities).

13. A (probable) total of 5 common lizards were recorded using a total of 7 refugia.

14. Populations can then be classed as:
    - 'small' for maximum counts up to 10,
    - 'medium' for maximum counts between 11 and 100,

[2] Froglife Advice Sheet 10 Reptile Survey, an introduction to planning, conducting and interpreting surveys for snake and lizard conservation

- ‘large’ for maximum counts over 100.

15. This method is in accordance with that for providing a ‘Population Count’ of Sewell et al. (2012). They state that a population count aims to give an idea of the relative abundance of species by using its peak count and use the same classing system.

16. A maximum total of 5 adult lizards were recorded using a total of seven refugia (see Figure 6.8). The results of the common lizard surveys reveal a population score of 1 (low population3) (with 7 individuals recorded). It is likely that the habitats surrounding T7 as well as adjacent to T12 and T13 are also potentially good habitat for this species. Albeit, optimal habitat that is degraded via overgrazing. Whereas the habitats surrounding T1, T2 & T4 and possibly T6 may also be suitable habitat for this species. sub-optimal (due to heavy sheep grazing) but that lizards are likely to be present (at low population densities).

Mitigation

17. In the case of common lizard, it has been impossible to totally avoid impacts to this species, given the layout constraints. Therefore, the next course of action is to mitigate for any potential impacts.

18. The results of the common lizard surveys for the Development were assessed against the Key Reptile Site Survey Assessment Categories (HGBI 1998). This revealed that parts of the Site had a low population (with five individuals recorded). However, given the location of the records, it is also likely that much of the site is sub-optimal habitat for this species. This is likely a consequence of over-grazing.

19. Depending on the commencement of construction on site, the works corridor will be mowed. If possible, this work will be undertaken before the end February (to avoid a conflict with the bird breeding season). If this is not possible, then mowing will take place between August and September, when common lizards are likely to be fully active. Should the latter be required, the corridor will be subjected to an active nest survey by a suitably qualified ornithologist immediately prior to the commencement of mowing operations.

20. Clearance of stones, tree stumps, logs, brash, rocks or piles of similar debris will be undertaken carefully and by hand. Although this is only required in a few areas where the proposed site tracks traverse low stone walls. This work will not take place during the hibernation period for common lizard (i.e. mid-October to mid-March).

21. Clearance of tall vegetation will be undertaken using a strimmer or brush cutter with all cuttings raked and removed the same day. Cutting will only be undertaken in a phased way which will either include:

    Cutting vegetation to a height of no less than 30mm, clearing no more than one third of the site in anyone day or;

    Cutting vegetation over three consecutive days to a height of no less than 150mm at the first cut, 75mm at the second cut and 30mm at the third cut;

22. Following removal of tall vegetation using the methods outlined above, the remaining vegetation will be maintained at a height of 30mm through regular mowing or strimming to discourage common lizards from returning. Ground clearance of any remaining low vegetation (if required) and any ground works will only be undertaken following the works described above.

[3] Froglife Advice Sheet 10 Reptile Survey, an introduction to planning, conducting and interpreting surveys for snake and lizard conservation

23. As an additional precaution the ECoW will be present from the commencement of clearance/construction with a watching brief to ensure that no common lizards remain within the construction corridor and remain in situ until the area is cleared to ensure no species or habitat conflicts emerge affecting damage to the local lizard population.

24. If any common lizards are found during excavation works, all works within the affected area will cease until the ECoW has safely removed them (under licence) from the construction corridor.

25. Should it prove necessary during site supervision (i.e. lizards are observed returning to the construction corridor); a protective lizard barrier fence will be installed along both sides of the construction corridor in order to prevent common lizards from entering the works area.

26. In total, there is >500 ha (of blanket bog; dry heath and marshy grassland) adjacent to the proposed construction corridor. These areas together provide more than sufficient suitable habitat.

Additional measures

27. 85.25ha of existing higher value habitats (likely derived from former heath/bog and fen) will be managed in order to restore these habitats to a more species-rich sward closer to those which once prevailed across the wider area.

28. The main management techniques that will be employed is the reduction in grazing and the blocking of all drains within the proposed habitat management areas. After 5 years the sward will be assessed and compared with the preconstruction baseline for the area. At this point, contingency measures such as the introduction of light grazing will be considered in order to maintain the momentum towards a more species-rich sward, while slowing down successional forces towards scrub/woodland (should this occur).

29. These habitat management measures will also benefit a range of NI Priority Species including common lizard; by creating a number of 'refuges' within which grazing is prohibited (or at a significantly reduced level).

Conclusions

30. With the implementation of the mitigation measures described above, there will be a minimal impact to the local lizard population on Carnbuck. However, with the habitat management proposals there will be a net gain for this species.