

Analysis of Species Data for Proposed Wigan NNR



Bryn Marsh SBI (part of Bryn Marsh and Ince Moss SSSI)

25th April 2019

Photo courtesy of Terry Eagan (c.)

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Executive Summary

Natural England commissioned Greater Manchester Ecology Unit (GMEU) to collate and build the evidence base to support a potential designation of the Leigh and Wigan flashes complex as a new 'urban' National Nature Reserve.

This report is the first stage in the potential designation process and analyses data submitted from a wide variety of sources over the period 2014 to 2019. The initial focus has been on the following species and groups, which are well represented due to the fen and wetland habitats predominating across these post-industrial sites.

Bats - none of the rare species listed in the SSSI selection guidelines have been recorded within the proposed NNR. The South Lancashire Bat Group have recommended the focus should be on *Myotis* species and *Noctule*.

Great Crested Newts – identified as a Strategic Opportunity Area. Population data are required to make an assessment against SSSI selection guidelines. Data on other amphibian species are also required.

Breeding bird assemblages (terrestrial and wetland) – Water Rail surveys carried out in 2014 identified 38 territories (0.97% of the estimated GB population). Pochard is the only other wetland breeding bird to achieve the 1% threshold in 2015 although numbers have declined since. Excellent data are available for terrestrial breeding species at the Wigan Flashes but no comparable surveys have been conducted at other sites so it is not currently possible to calculate total numbers of territories across the proposed NNR. Cetti's Warbler is a recent colonist which has seen a rapid expansion in its numbers to approximately 26 territories (0.75% of the estimated GB population) in 2019.

Non-breeding wetland bird assemblages – despite excellent coverage of the main wetlands through WeBS counts, Gadwall is the only species to reach the 1% national threshold on more than a few occasions. However, there is a gap in the data covering post breeding assemblages in late summer.

Willow Tit – probably the key species for achieving NNR designation. The proposed NNR supports an estimated 75 pairs (2.7% of the estimated GB population of 2750 pairs). However, the national population may now be lower than this and there is evidence to suggest additional pairs may be present within the proposed NNR boundaries. Further surveys in these areas are planned for spring 2021. An adjustment to the provisional boundary could add another six to eight pairs to the total (see Willow Tit appendix).

Data gaps have been identified and recommendations made for further surveys, which would establish a clearer picture of the potential for NNR designation.

Background

This cluster of post-industrial 'Flashes' and wetland habitats were created through flooding of subsided deep mine workings. The sites hold an excellent assemblage of breeding and wintering waders, and wetland birds, making their home across a range of lowland wetland and transitional habitat types, including some unusual components more typically associated with coastal wetlands.

GMEU is the lead partner developing the evidence and survey base for the Wigan NNR partnership, leading a Citizen Science project surveying for key species, training, mentoring, and building the surveyor cohort for long-term legacy of evidence building across this landscape. As part of this Wigan NRN programme, GMEU will extend the Citizen Science programme to collect new data, collate and build the evidence base to support a potential designation for these Flashes as a new 'urban' NNR. This will be through a combination of desk-based research of existing records and by engaging the local community, and local bird and wildlife groups, in developing the evidence base further. The evidence base will be used to support a bid for designation as a new NNR and for a 50-year vision and long-term management plan for this super cluster of sites and their environment.

WeBS Sites Data Analysed

Monthly WeBS counts from September to March for the five-year period 2015-16 to 2019-20 have been analysed from the following sites to produce the individual species tables below (pages 7–13).

Count Unit (BTO)	Site Name	Grid Ref	SBI	Designation
Abram Flashes	Abram Flashes SSSI	SD609004	Yes	SSSI
Amberswood Common	Amberswood Common SBI	SD605040	Yes	No
Diggles Flash	Bickershaw CP	SD633017	No	No
Fan Lodge	Fan Lodge	SD624017	No	No
Fir Tree Flash	Bickershaw CP	SD640010	Yes	No
Higher Hall Flash	Higher Hall Flash	SD635006	No	No
Hope Carr Nature Reserve	Hope Carr Nature Reserve	SJ661986	Yes	No
Lightshaw Water Treatment Works Lake	Lightshaw Lime Beds SBI	SJ615988	Yes	No
Low Hall Park	Low Hall Park SBI	SD611032	SBI	LNR
Mesnes Park Wigan *	Mesnes Park Wigan	SD578062	No	No
Pennington Flash	Pennington Flash SBI	SJ637991	Yes	LNR
Red Seas (Crooke) *	Crooke SBI	SD555071	Yes	No

Count Unit (BTO)	Site Name	Grid Ref	SBI	Designation
Three Sisters Recreation Area	Three Sisters SBI	SD581009	Yes	LNR
Westwood Flash		SD580042	Yes	No
Bryn Marsh	Bryn Marsh SBI	SD586025	Yes	SSSI/LNR
Hawkey Reedbed	Scotman's Flash SBI	SD581032	Yes	LNR
Horrocks' Flash	Horrocks' Flash SBI	SD592026	Yes	LNR
Ochre Flash	Ochre Flash SBI	SD581027	Yes	LNR
Pearson's Flash	Pearson's Flash SBI	SD583039	Yes	LNR
Scotman's Flash	Scotman's Flash SBI	SD579036	Yes	LNR
Turner's Flash	Turner's Flash SBI	SD588031	Yes	LNR

* Site outside proposed NNR boundary.

The WeBS team at the British Trust for Ornithology has kindly agreed to the use of their data to support the potential designation of the proposed NNR and has produced an analysis of counts submitted from the above sites (appendix 1) during WeBS years 2014/15 to 2018/19. These show the autumn, winter and spring peaks for all species combined, five-year average monthly counts of each species, five-year peak monthly counts of each species and additional analysis.

The GMEU analysis (appendix 2) shows monthly counts (September to March only) for individual species at each site during WeBS years 2015/16 to 2019/20 and the combined counts for each species expressed as a percentage of the GB national population estimate.

Species Analysis

Monthly counts for all species have been analysed (see appendices 1 and 2) with seven species shown in detail (pages 7 to 13). Either those with the highest populations within the proposed NNR, or those that meet the 1% GB threshold required for SSSI selection.

Colour codes

	Meets or exceeds 1% GB threshold
	Meets 0.5% to 0.99% GB threshold
	Below 0.5% of GB threshold

Gadwall *Mareca strepera*

1% GB threshold = 310

BOCC status – Amber-listed

Year	2015-16	2015-16	2016-17	2016-17	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20
Month	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB
Sep	356	1.15	369	1.19	239	0.77	289	0.93	246	0.79
Oct	225	0.73	343	1.11	200	0.65	341	1.10	202	0.65
Nov	230	0.74	224	0.72	200	0.65	373	1.20	179	0.58
Dec	356	1.15	225	0.73	254	0.82	304	0.98	141	0.45
Jan	280	0.90	186	0.60	174	0.56	242	0.78	151	0.49
Feb	84	0.27	223	0.72	150	0.48	160	0.52	97	0.31
Mar	63	0.20	107	0.35	40	0.13	90	0.29	52	0.17

	1%+ GB threshold - 6/35 months (17%)
	0.5% to 0.99% of GB threshold – 19/35 months (54%)
	Below 0.5% of GB threshold – 10/35 months (29%)

Gadwall is the only non-breeding wetland bird to reach the 1% GB threshold in six months over the five-year period analysed, (four September counts, one in October and one in November). The highest total counts from the proposed Wigan NNR sites are 373 birds in November 2018 (1.20% of GB population) and 369 individuals (1.19%) in September 2016.

There is a data gap for Gadwall with no WeBS counts in June to August at the main sites when numbers often peak at Woolston Eyes SSSI (post-breeding moult flock).

Shoveler *Spatula clypeata*

1% GB threshold = 190

BOCC status – Amber-listed

Year	2015-16	2015-16	2016-17	2016-17	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20
Month	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB
Sep	94	0.49	89	0.47	28	0.15	88	0.46	93	0.49
Oct	106	0.56	151	0.79	90	0.47	99	0.52	68	0.36
Nov	60	0.32	104	0.55	60	0.32	103	0.54	111	0.58
Dec	32	0.17	112	0.59	91	0.48	42	0.22	65	0.34
Jan	51	0.27	88	0.46	82	0.43	120	0.63	105	0.55
Feb	45	0.24	141	0.74	78	0.41	102	0.54	66	0.35
Mar	53	0.28	86	0.45	37	0.19	87	0.46	48	0.25

	1%+ GB threshold - 0/35 months (0%)
	0.5% to 0.99% of GB threshold – 11/35 months (31%)
	Below 0.5% of GB threshold – 24/35 months (69%)

The Great Britain population of wintering Shoveler has increased between the two assessment periods from 18,000 (2004/05 to 2008/09) to 19,000 (2012/13 to 2016/17) which reflects a genuine change in numbers. The highest total counts from the proposed Wigan NNR sites are 151 birds in October 2016 (0.79% of GB population) and 141 (0.74%) in February 2017.

As with Gadwall, there are no WeBS counts in June to August at the main sites. Significant numbers occur at Woolston Eyes SSSI in August (post-breeding moult flock).

In winter, Shoveler favour shallow freshwater and flooded meadows where they feed on freshwater invertebrates. Food abundance is of crucial importance for winter habitat selection and research has shown that if zooplankton density decreases at a site over winter the birds will move on (Waterbirds in the UK 2014/15).

Tufted Duck *Aythya fuligula*

1% GB threshold = 1300

BOCC status – Green-listed

Year	2015-16	2015-16	2016-17	2016-17	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20
Month	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB
Sep	362	0.28	625	0.48	346	0.27	576	0.44	401	0.31
Oct	508	0.39	727	0.56	558	0.43	500	0.38	561	0.43
Nov	522	0.40	723	0.56	479	0.37	407	0.31	439	0.34
Dec	547	0.42	581	0.45	340	0.26	597	0.46	463	0.36
Jan	556	0.43	438	0.34	260	0.20	336	0.26	299	0.23
Feb	288	0.22	363	0.28	302	0.23	291	0.22	278	0.21
Mar	366	0.28	364	0.28	235	0.18	367	0.28	394	0.30

	1%+ GB threshold - 0/35 months (0%)
	0.5% to 0.99% of GB threshold – 2/35 months (6%)
	Below 0.5% of GB threshold – 33/35 months (94%)

Despite being the most abundant diving duck in winter on the Leigh and Wigan Flashes with combined peak counts regularly exceeding 500, in national terms the numbers are not significant. The highest combined counts over the five year assessment period were 727 (0.56% of GB population) in October 2016 and 723 (0.56%) in November 2016. All other counts during this period have fallen below 0.50% of the GB population.

Smew *Mergellus albellus*

1% GB threshold = 1

BOCC status – Amber-listed

Year	2015-16	2015-16	2016-17	2016-17	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20
Month	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB
Sep										
Oct										
Nov					1	1				
Dec										
Jan									1	1
Feb					1	1			1	1
Mar									1	1

	1%+ GB threshold - 5/35 months (14%)
	0.5% to 0.99% of GB threshold – 0/35 months (0%)
	Below 0.5% of GB threshold – 0/35 months (0%)

Smew have only occurred in two out of the five most recent winters with the Wigan Flashes being the favoured site. A redhead first seen at Pennington Flash in early January 2020, then relocated to Turner’s Flash (Wigan Flashes) where it remained into March. The GB wintering population is estimated at 130 birds, so a single is of national significance. However, as Smew are absent from Wigan in most winters, this species will not support the potential NNR designation.

Great Crested Grebe *Podiceps cristatus*

1% GB threshold = 170

BOCC status – Green-listed

Year	2015-16	2015-16	2016-17	2016-17	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20
Month	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB
Sep	89	0.52	67	0.39	60	0.35	102	0.60	67	0.39
Oct	59	0.35	54	0.32	46	0.27	57	0.34	55	0.32
Nov	21	0.12	70	0.41	47	0.28	37	0.22	29	0.17
Dec	18	0.11	56	0.33	43	0.25	29	0.17	36	0.21
Jan	18	0.11	43	0.25	36	0.21	39	0.23	27	0.16
Feb	22	0.13	28	0.16	43	0.25	26	0.15	23	0.14
Mar	39	0.23	42	0.25	24	0.14	67	0.39	65	0.38

	1%+ GB threshold - 0/35 months (0%)
	0.5% to 0.99% of GB threshold – 2/35 months (6%)
	Below 0.5% of GB threshold –33/35 months (94%)

The maximum combined counts for Great Crested Grebe during the five-year period analysed were 102 birds (0.60% of GB population) in September 2018 and 89 (0.52%) in September 2015. All other counts were below 0.5% of the estimated GB non-breeding population.

Post-breeding congregations at Pennington Flash and the Wigan Flashes in August are currently missed due to the lack of summer WeBS counts. Adhoc records indicate that August is often the peak month for the species at these two sites with 116 present in August 2010 and 107 in August 2011.

Coot *Fulica atra*

1% GB threshold = 2000

BOCC status – Green-listed

Year	2015-16	2015-16	2016-17	2016-17	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20
Month	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB
Sep	1458	0.73	1539	0.77	1440	0.72	1641	0.82	1361	0.68
Oct	1663	0.83	2171	1.09	1167	0.58	1823	0.91	1070	0.54
Nov	1607	0.80	1849	0.92	1063	0.53	1439	0.72	1007	0.50
Dec	1392	0.70	1507	0.75	1074	0.54	1330	0.67	961	0.48
Jan	885	0.44	1310	0.66	730	0.37	1144	0.57	729	0.36
Feb	399	0.20	693	0.35	597	0.30	816	0.41	454	0.23
Mar	289	0.14	338	0.17	396	0.20	412	0.21	411	0.21

	1%+ GB threshold - 1/35 months (3%)
	0.5% to 0.99% of GB threshold – 20/35 months (57%)
	Below 0.5% of GB threshold – 14/35 months (40%)

Coot only reached the 1% GB threshold in one month over the five-year period analysed, with 2171 birds counted in October 2016. The combined counts came close in November 2016 with 1849 (0.92%) recorded and again in October 2018 with 1823 (0.91%).

Green Sandpiper *Tringa ochropus*

1% GB threshold = 3

BOCC status – Amber-listed

Year	2015-16	2015-16	2016-17	2016-17	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20
Month	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB	Count	% of GB
Nov	3	1.00	1	0.33	2	0.67	2	0.67	0	0
Dec	3	1.00	1	0.33	0	0	1	0.33	0	0
Jan	1	0.33	1	0.33	1	0.33	1	0.33	0	0
Feb	0	0	1	0.33	1	0.33	2	0.67	0	0
Mar	0	0	4	1.33	0	0	1	0.33	0	0

	1%+ GB threshold - 3/35 months (9%)
	0.5% to 0.99% of GB threshold – 3/35 months (9%)
	Below 0.5% of GB threshold – 10/35 months (29%)

The GB wintering population estimate is based on the core wintering months of November to March to exclude all passage birds.

Hope Carr NR is the premier site for this species, so this alone may justify its inclusion within the NNR boundary.

Other Wetland Birds (non-breeding) – WeBS Data Analysis

Year	2015-16	2015-16	2016-17	2016-17	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20
Species	Monthly Mean	% of GB	Monthly Mean	% of GB	Monthly Mean	% of GB	Monthly Mean	% of GB	Monthly Mean	% of GB
Mute Swan	87	0.17	102	0.20	60	0.12	66	0.13	66	0.13
Teal	204	0.05	344	0.08	252	0.06	216	0.05	112	0.03
Mallard	530	0.08	584	0.09	654	0.10	568	0.08	439	0.07
Pochard	19	0.08	13	0.06	22	0.10	30	0.13	16	0.07
Goldeneye	37	0.19	46	0.24	34	0.18	38	0.20	45	0.24
Goosander	21	0.14	37	0.25	26	0.18	32	0.22	21	0.14
Little Grebe	20	0.13	30	0.20	16	0.11	27	0.18	21	0.14
Lapwing	124	0.02	102	0.02	150	0.02	208	0.03	58	0.01
Snipe	14	0.00	41	0.00	13	0.00	14	0.00	13	0.00
Cormorant	46	0.07	49	0.08	46	0.07	41	0.07	37	0.06

Jack Snipe *Lymnocyptes minimus*

Most Jack Snipe are not detected during WeBS counts and the species requires specialist surveys to identify the numbers using a site.

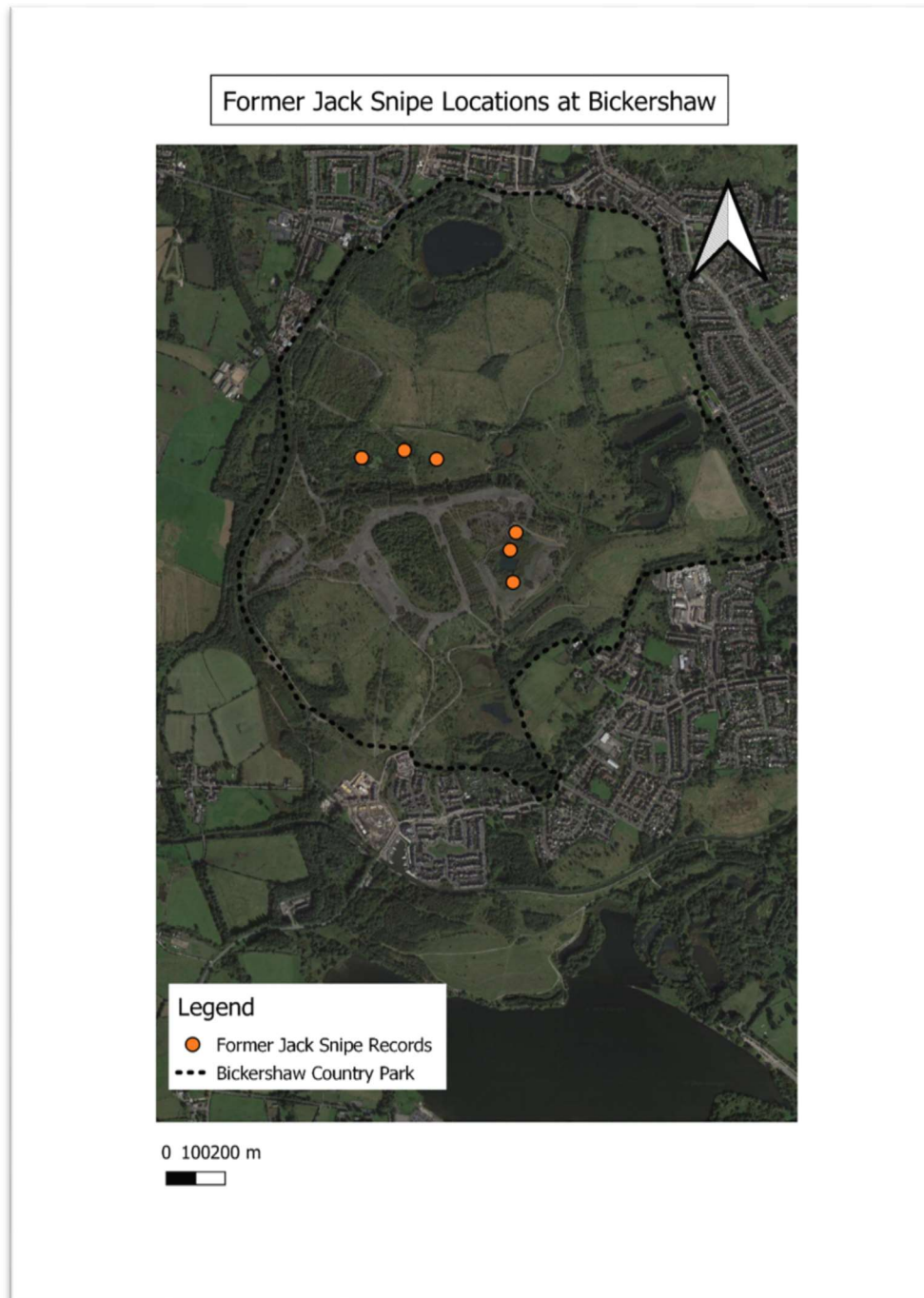
Nationally important numbers of Jack Snipe (30+) used to occur at Bickershaw Colliery SBI up until 2009 when 20 were recorded on 4th January. In recent years, only low single figures have been reported with a maximum of three on 28th February 2019. The site was ranked joint second in the country in 2008/09 and used as a day roost with birds flying off to feed elsewhere long after sunset.

A visit to Bickershaw with the Leigh Ornithological Society was organised on 21st October 2020 to draw on Dave Wilson's detailed knowledge of the site that goes back many years, and for him to show us the areas where he used to record the species

(see map below). His most recent major counts were 21 on 18th October and 18th November 2008.

We agreed that due to access problems and the encroachment of scrub/trees that it would not be possible or worthwhile, to carry out Jack Snipe surveys at Bickershaw Colliery SBI in the winter of 2020-21. However, it would be worth reviewing the situation in October 2021, if habitat work is carried out in these areas over the winter.

Map courtesy of Elizabeth Hill – Lancashire Wildlife Trust



Gulls

The recording of gulls is optional during WeBS counts so these data have not been analysed. Ad hoc roost counts will provide a better assessment of the numbers using the Leigh and Wigan Flashes, although no recent data are available from the Wigan Flashes. Average winter counts at Pennington Flash between 2013 and 2018 and estimated wintering numbers in Great Britain are shown in the table below.

Species	Average Winter Roost Count 2013-18	GB 1% Population Threshold
Black-headed Gull	5800	22,000
Common Gull	70	7000
Great Black-backed Gull	35	760
Herring Gull	190	7300
Lesser Black-Backed Gull	190	1200

Pennington Flash occasionally meets the 1% threshold for some of the rarer gulls Glaucous Gull (2), Iceland Gull (3), Caspian Gull (1) but not for Yellow-legged Gull (8) which occurs in low single figures.

Non-breeding wetland birds – conclusion

BTO WeBS volunteers count all the main water bodies monthly from September to March, so coverage is excellent. Unsurprisingly, Pennington Flash and the Wigan Flashes hold the bulk of the birds, and although a few smaller water bodies are not currently surveyed, these are unlikely to hold enough birds to make a significant difference to the species totals.

The BTO WeBS data analysis across all of the proposed NNR sites, for the five year period 2014/15 to 2018/19 (appendix 1), gives a mean autumn peak of 4659 birds and a mean winter peak of 4480 birds. The JNCC Guidelines for the Selection of Biological SSSIs (Chapter 17 Birds) states that a site supporting over 20,000 waterbirds (as defined by the Ramsar Convention) in any season will qualify.

With the exception of Gadwall, Green Sandpiper and Smew the combined WeBS counts for individual species also fail to meet the criteria for SSSI selection (1% of GB population) and therefore would not support the proposed NNR designation. A good benchmark is Woolston Eyes SSSI where numbers of the assessed species are significantly higher than the combined Leigh and Wigan Flashes totals.

Willow Tit *Poecile montanus*

The Rare Breeding Birds Panel (RBBP) added Willow Tit to its assessment list in 2010, since when records from Greater Manchester have been analysed by the GM Bird Recording Group and submitted to RBBP for publication in its annual report. Comparison with the totals from other counties shows that Greater Manchester, as a whole, supports numbers of national importance (ranked 2nd in 2018 with 10.28% of the estimated national population, Eaton et al 2020) and that Wigan district holds the highest number of pairs in GM. When the focus is narrowed further to within the

proposed NNR boundary, survey data from the past five years suggests a population of approximately 75 pairs, out of an estimated GM population of 120 pairs (source Mark Champion, Lancashire Wildlife Trust). However, there are a significant number of 1-km squares (the matrix between the main sites) which have not been surveyed in the past five years and are known to contain additional pairs, evidenced from ad hoc records.

The table below shows the number of pairs/territories recorded at each site within the proposed NNR over the past five years. Formal surveys were carried out in 2016, 2018 and 2019 with only ad hoc records submitted in 2015 and 2017. Consequently, given the sedentary nature of the species, it is reasonable to assume that the territories registered in survey years were also occupied in the non-survey years and that pairs have not relocated. So the NNR population estimate of 68 pairs is based on the maximum number recorded at each site over the five-year period 2015 to 2019.

The GB population was estimated at 2750 pairs (reliability 2 on a scale of 1 (good) to 3 (poor) in 2016 based on CBC/BBS data, which would mean the proposed Wigan NNR area currently holds 2.47% of the national population. However, the importance of the Wigan population may be significantly higher, as the species has declined further in some areas of its current range and RBBP data from 2016 suggests the population may be lower than this figure. This should become clearer once the national RSPB surveys are hopefully, completed in 2021 and a revised GB population estimate calculated. Monitoring of nests by Wayne Parry on Amberswood Common, Low Hall LNR and the Wigan Flashes LNR between 2017 and 2019 has identified 35-37 pairs.

Site	2015 Pairs	2016 Pairs	2017 Pairs	2018 Pairs	2019 Pairs	2015-19 Max Pairs
Abram Flashes SSSI	1	4	1	4	3	4
Amberswood Common SBI	8	7		10	15	15
Barlow's Farm SBI		3				3
Bickershaw CP		2	3	3	4	4
Crankwood					1	1
Hope Carr NR			1			1
Kingsdown Flash						1
Lightshaw Lime Beds SBI				1	1	1
Low Hall Park LNR	1	3		4	4	4
Parson's Meadow SBI		1				1
Pennington Flash LNR	5	5	2	6	7	7
Pennington Brook (SJ6498)					1	1
Pickley Marsh SBI	1	1	0	1		1
Three Sisters LNR		2	4	4		4
Victoria Fields						2
Viridor Wood		2			4	4
Westwood Flash SBI	1	1	No data	1	1	1
Wigan Flashes LNR	20	9	No data	8	13	13
Total pairs	37	40	11	42	49	68

Breeding Bird Assemblages

The Lancashire Wildlife Trust has carried out Common Bird Census (CBC) surveys at the Wigan Flashes annually, since 1999. This twenty-year dataset is of great value in calculating the numbers of territories for approximately 70 breeding species and showing trends in abundance for both terrestrial and wetland breeding birds. Unfortunately, with the exception of a few wetland bird species, in particular Water Rail, there is no comparable data from the other sites within the proposed NNR to allow us to calculate total population estimates. The table below summarises the number of species recorded between 2014 and 2019 and the total number of territories. 2017 data were not available when preparing this report.

Year	2014	2015	2016	2018	2019
Total Species	69	68	65	68	69
Total Territories	2026	1956	1937	1550	1897

Terrestrial Breeding Birds Wigan Flashes 2014-16 and 2018-19

The table below shows number of territories for protected/priority species and the most abundant species and puts these in the context of GB population estimates (1). No species reach the 1% GB threshold but Cetti's Warbler comes closest (see below).

Species	Designation/Conservation Status	Max or 5 Year Mean (T or Pairs)	GB 1% Estimated Breeding Population
Skylark	S41 NERC Red-listed BOCC	3	15,000
Cuckoo	S41 NERC Red-listed BOCC	1 max	170
Starling	S41 NERC Red-listed BOCC	3	16,500
Wren	Green-listed BOCC	207	97,500
Dunnock	S41 NERC Amber-listed BOCC	46	23,500
Cetti's warbler	Schedule 1 W&C Act	19 max	34
Grasshopper Warbler	S41 NERC Red-listed	2	9750
Sedge Warbler	Green-listed BOCC	10	2200
Reed Warbler	Green-listed BOCC	317	1300
Blackcap	Green-listed BOCC	92	1600
Garden Warbler	Green-listed BOCC	9	1450
Whitethroat	Green-listed BOCC	23	11,000
Willow Warbler	Amber-listed BOCC	130	20,500
Chiffchaff	Green-listed BOCC	39	16,500
Robin	Green-listed BOCC	113	66,500
Blackbird	Green-listed BOCC	70	48,500
Song Thrush	S41 NERC Act Red-listed BOCC	36	12,000
Bullfinch	S41 NERC Act Amber-listed BOCC	6	2250
Linnet	S41 NERC Act Red-listed BOCC	3 max	5300
Lesser Redpoll	S41 NERC Act Red-listed BOCC	12	2200
House Sparrow	S41 NERC Act Red-listed BOCC	13	51,500
Reed Bunting	S41 NERC Act Amber-listed BOCC	27	2550

Cetti's Warbler *Cettia cetti*

The species is expanding its distribution northwards and was first recorded in Greater Manchester, at the Wigan Flashes, in late 2007 when a male established a territory over winter. Numbers have increased significantly since and breeding has been confirmed at both Pennington Flash and the Wigan Flashes. In 2019 an estimated 26 territories were recorded across the proposed NNR equating to 0.75% of the GB population. However, this is a moving target with numbers increasing by 113% between 2008 and 2018 in England.

Wetland Breeding Birds Wigan Flashes 2014-16 and 2018-19

Species	Designation/Conservation Status	Max or 5 Year Mean (Territories or Pairs)	GB 1% Estimated Breeding Population (pairs)
Little Grebe	Green-listed BOCC	3	33-66
Great Crested Grebe	Green-listed BOCC	11	43
Grey Heron (nests)	Green-listed BOCC	9	99
Bittern	Schedule 1 W&C Act Amber-listed	1 max	2
Mute Swan	Green-listed BOCC	12	65
Gadwall	Amber-listed BOCC	5	12-31
Mallard	Amber-listed BOCC	29	590-1400
Eurasian Teal	Amber-listed BOCC	1	27-47
Shoveler	RBBP Amber-listed BOCC	2 max	11
Pochard	RBBP Red-listed BOCC	7 max	7
Tufted Duck	Green-listed BOCC	5	160-180
Water Rail	Green-listed BOCC	13	39
Moorhen	Green-listed BOCC	30	2000
Coot	Green-listed BOCC	38	255
Oystercatcher	Amber-listed BOCC	1	925
Little Ringed Plover	Schedule 1 W & C Act Green-listed	2 max	12
Lapwing	S41 NERC Act Red-listed BOCC	5	965
Common Sandpiper	Amber-listed BOCC	2 max	130
Redshank	Amber-listed BOCC	1	220
Black Headed Gull	Amber-listed BOCC	141	1300
Common Tern	Amber-listed BOCC	16	96
Kingfisher	Schedule 1 W&C Act Green-listed	2	36

BOCC – Birds of Conservation Concern RBBP – Rare Breeding Birds Panel

Water Rail – *Rallus aquaticus*

2014 is the most recent year for which comprehensive data are available for this species. Tape luring surveys carried out across the main Wigan wetland sites identified 38 territories (0.97% of the estimated GB breeding population). The likelihood is that a few territories were missed, in particular in the reedbeds at Pennington Flash where a pair was observed in April 2019, and possibly at Amberwood Common and Low Hall LNR. Based on survey results from the Wigan

Flashes from 2015 to 2019, the proposed NNR population appears to be stable, so may currently slightly exceed the 1% GB threshold. The table shows the breakdown of the 2014 surveys by site.

Site	Water Rail Territories (no.) 2014
Abram Flashes SSSI	10
Bickershaw Colliery	5
Crankwood Pond	1
Red Seas Crooke	1
Nevison's Flash - Bickershaw	2
Wigan Flashes LNR	19
Total	38

Breeding Wetland Bird Surveys 2019

Carbon Landscape Citizen Science Project volunteers carried out structured surveys based on an RSPB methodology (used by the Woolston Eyes Conservation Group for a number of years) at some of the main wetland sites within the proposed NNR. The numbers of pairs estimated from the survey data are shown in the table below which also contains estimates from the Wigan Flashes CBC surveys carried out in 2019. Whilst the methodologies are different, combining the results from the two surveys gives us the best available insight into the current breeding populations of these species.

Species	Abram Flashes	Pennington Flash	Horrock's Flash	Wigan Flashes (other)	Total pairs	GB 1% estimated breeding population
Shelduck	3	1			4	76
Gadwall	4	7	6	6	23	12-31
Shoveler	4	1	1		6	11
Teal		2	1		3	27-47
Tufted Duck	1	3	16	3	23	160-180
Great Crested Grebe		2	3	8	13	43
Little Ringed Plover					5	12
Common Tern	1	1	12		14	96
Black-headed Gull		14	97	7	118	1300
Kingfisher					3	36

Gadwall, with an estimated breeding population of 23 pairs, is the only species to exceed the 1% GB threshold (lower limit) of 12 pairs.

The only Pochard recorded during the surveys was a pair at Pennington Flash on 8th April, assumed to be over wintering, or passage birds, as they were not seen on subsequent monthly surveys between May and July.

Heronries

There are two heronries at Horrock's Flash (Wigan Flashes) and at Pennington Flash. The table below shows the number of apparently occupied Grey Heron (*Ardea cinerea*) nests at each site since 2014. The Pennington Flash heronry was only established in 2010.

Site	2014	2015	2016	2017	2018	2019
Pennington Flash	6	9	9	12	11	No data
Horrock's Flash	8	12	8	No data	8	9
Totals	14	21	17	12	19	9

The GB 1% threshold is 99 nests, so even in the peak year of 2015, the total number of breeding pairs falls well short of this figure.

Eurasian Bittern *Botaurus stellaris*

The Carbon Landscape Citizen Science Project organised breeding and wintering Bittern surveys between 2018 and 2020 at Bickershaw CP, Pennington Flash and the Wigan Flashes. Single date surveys also took place at Bickershaw CP and the Wigan Flashes in December 2020 as part of the Wigan NNR pilot project. The only Bittern recorded during the surveys was observed at Pennington Flash on 17/12/2018. However, there have been a number of adhoc records in recent years, which suggests a small wintering population of up to four Bitterns (0.5% of estimated GB wintering population, comprising c.400 resident birds and a similar number of migratory European wintering individuals). Single booming males were recorded at Nevison's Flash, Bickershaw CP in April 2013, at the Abram Flashes SSSI in May 2016 and at Bryn Marsh SBI (Wigan Flashes LNR) in 2015 and May 2019. Intriguing sightings of a Bittern at Pennington Flash in June 2015 and June 2016, as well as an individual observed searching for food in Fir Tree Flash, Bickershaw CP on 5th July 2015, raise questions about the species status at these sites. The RSPB Summary of the 2019 Bittern Breeding season reported another increase to 200 boomers from 90 sites and states that "given the increasing number of successful nests reported across the country, it is increasingly likely that new and formerly-occupied sites will become occupied by booming Bitterns in the near future." Further reedbed restoration and creation in Wigan could result in the establishment of a small breeding population within the proposed NNR.

Long-eared Owl *Asio otus*

Breeding Long-eared Owl records have been analysed from 2010 to 2018 and indicate a population of nine pairs within the NNR out of a total Greater Manchester population estimated at 37 pairs. The species is notoriously difficult to detect and the best way to survey is by evening visits in late May/June to listen for the hunger calling of recently fledged juveniles, described as the “squeaky gate” call. The national population estimate is 1600 to 5300 pairs so the NNR figure equates to 0.56% of the lower figure. A coordinated survey could yield a much higher figure, as was the case in County Durham where dedicated fieldwork in 2017 identified 80 breeding pairs, the largest known breeding population of any UK county.

Proposed Wigan NNR Boundary

The boundary of the proposed NNR will be subject to the agreement of the project partners. However, a suggested boundary, shown on the map on page 18 would enclose the Abram Flashes SSSI, the Bryn Marsh and Ince Moss SSSI, 24 Sites of Biological Importance (SBIs) and four Local Nature Reserves (LNRs).

The Sites of Biological Importance, their grades and their qualifying features are shown in the table below. 15 SBIs are selected as grade A (site of county or regional importance), six as grade B (site of district importance) and three as grade C (site of local importance).

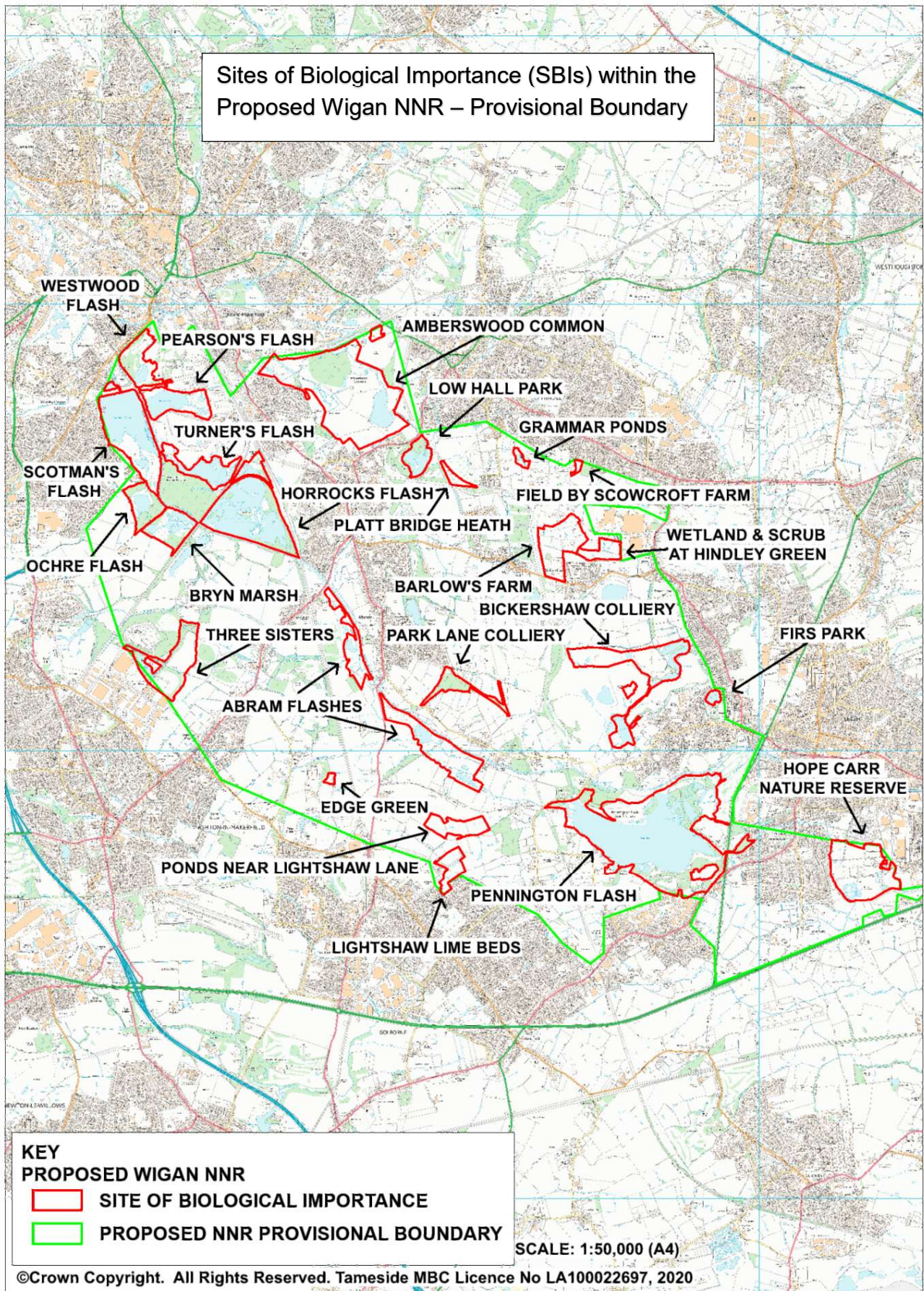
Sites of Biological Importance (SBIs) – Local Wildlife Sites

Ref no.	Site Name	Grid Ref	Site Grade	Features
A90	Abram Flashes	SD612002	A	Reedbed (Fw1); Birds (Br 3, Br4 & Br6)
A50	Amberswood Common	SD605040	B	Grasslands (Gr2), Birds (Br5 & 6), Ponds (Fw2)
A59	Barlow's Farm	SD627023	A	Swamp (Fw1); Ponds (Fw2); Aquatic invertebrates (AI1); Amphibians (Am1); Birds (Br4 & Br6)
A62	Bickershaw Colliery	SD637009	A	Grassland (Gr2); Reedbed (Fw1); Ponds (Fw2); Open water (Fw3); Running water (Rw4); Urban (Ur1); Birds (Br4, Br5 & Br6)
A36	Bryn Marsh	SD584025	A	Reedbed & Swamp (Fw1); Open water (Fw3); Birds (Br4)
A73	Edge Green	SJ602997	C	Reedbeds, Swamp & Fen (Fw1)
A92	Field by Scowcroft Farm	SD629032	B	Grassland (Gr2)
A65	Firs Park	SD645006	C	Open Water (Fw3)
A60	Grammar Ponds	SD623032	B	Ponds & Small Lodges (Fw2)
A79	Hope Carr Nature Reserve	SJ661987	A	Birds (Br4, Br5 & Br6)

Sites of Biological Importance (SBIs) – Local Wildlife Sites

Ref no.	Site Name	Grid Ref	Site Grade	Features
A46	Horrocks Flash	SD593026	A	Wet Woodland (Wd1); Open Water (Fw3); Bird (Br6 & Br2)
A75	Lightshaw Lime Beds	SJ615988	A	Ponds (Fw2); Open water (Fw3); Birds (Br3, Br4 & Br5)
A55	Low Hall Park	SD612033	A	Fw1 (Reedbed, Swamp & Fen); Open water (Fw3); Birds (Br6)
A37	Ochre Flash	SD581027	A	Reedbeds & Swamp (Fw); Open water (Fw3); Birds (Br4 & Br6)
A54	Park Lane Colliery	SD617007	B	Grassland (Gr2)
A39	Pearson's Flash	SD583039	A	Reedbed & Swamp (Fw1); Open Water (Fw3); Birds (Br4, Br5 & Br6)
A78	Pennington Flash	SJ635990	A	Grassland (Gr2); Reedbed & Swamp (Fw1); Open water (Fw3); ; Mammals (MM2); Birds (Br2, Br3, Br4, Br5, Br6, Br7, WB1, WB4)
A99	Platt Bridge Heath	SD616030	C	Heathland (HB1)
A76	Ponds near Lightshaw Lane	SJ616991	A	Ponds (Fw2); Amphibians (Am1); Grassland (Gr2); Birds (Br6)
A31	Scotman's Flash	SD579037	A	Reedbed & Swamp (Fw1) ; Open water (Fw2); Birds (Br3, Br4 & Br6)
A103	Three Sisters	SD584010	B	Ponds & Small Lodges (Fw2); Grassland (Gr2); Woodland (Wd1); Birds (Br5 & Br6)
A38	Turner's Flash	SD588031	A	Reedbed & Swamp (Fw1); Open water (Fw3); Birds (Br6)
A40	Westwood Flash	SD580043	A	Reedbed & Swamp (Fw1); Scrub (Wd3); Open Water (Fw3); Dragonflies (Dr1); Birds (Br6)
A63	Wetland & Scrub at Hindley Green	SD632022	B	Ponds (Fw2); Amphibians (Am1); Reedbed (Fw1)

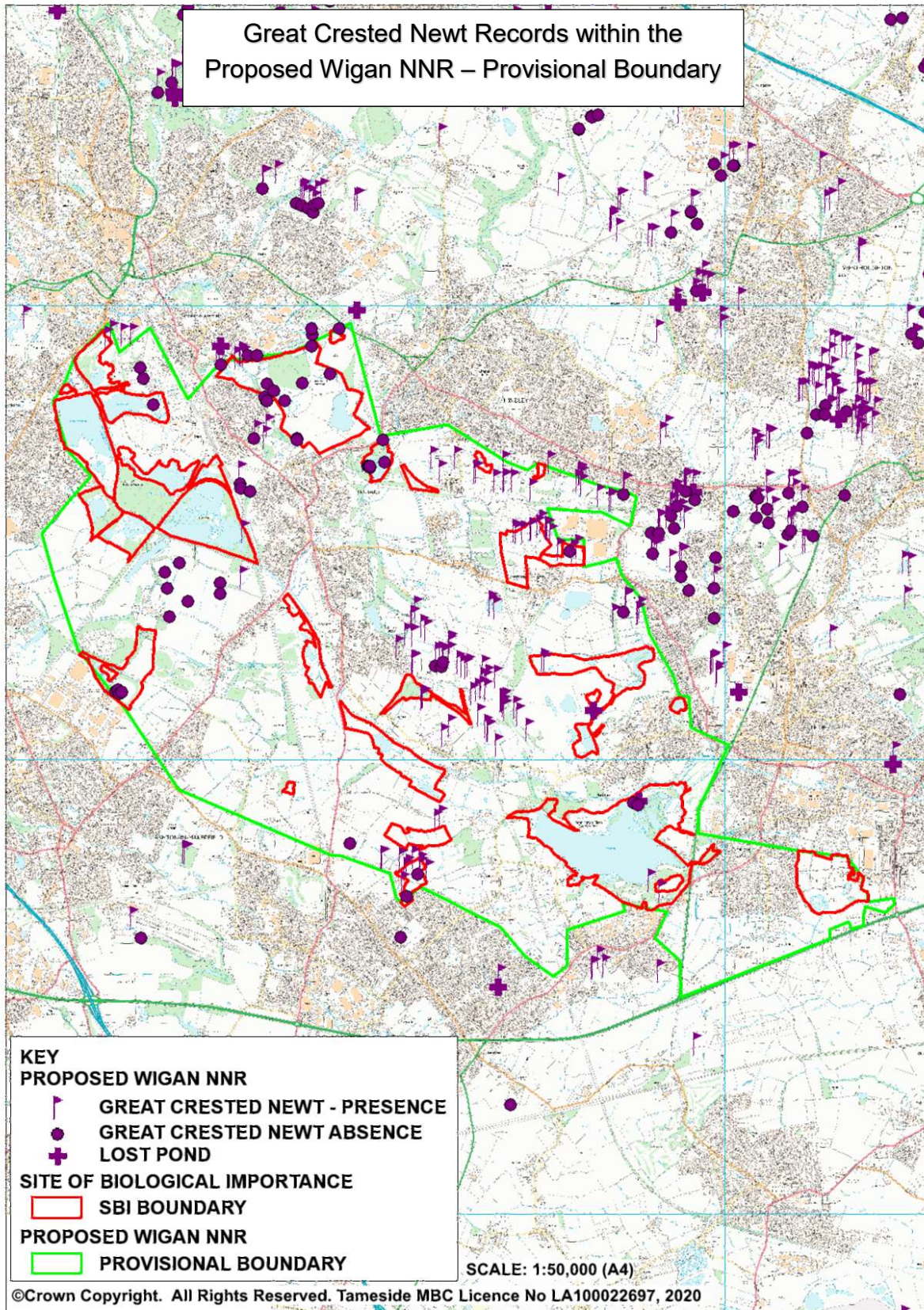
Sites of Biological Importance (SBIs) – Local Wildlife Sites



Great Crested Newt *Triturus cristatus*

The proposed NNR falls within a Great Crested Newt Strategic Opportunity Area and new ponds are being created as part of District Level Licensing (DLL). Barlow's Farm SBI, Ponds near Lightshaw Lane SBI, and Wetland and Scrub at Hindley Green SBI are the only SBIs which have been selected partly due to the presence of Great Crested Newts, although the species is found at other SBIs such as Amberswood Common and Bickershaw Colliery. However, as the map shows, the records held by GMEU indicate other sites within the provisional boundary where they also occur. Records from outside the boundary are shown on the map as we may wish to consider including some of these areas within the proposed NNR.

Further work is required to identify whether population surveys have been carried out at any of the sites where Great Crested Newts occur. In the absence of population data it is not possible to assess the importance of the proposed NNR for Great Crested Newts at a county, regional or national level.



Bats

The South Lancashire Bat Group are the primary source of local bat records although other data from national surveys may be available e.g. National Bat Monitoring Programme's Waterway Survey, which monitors Daubenton's Bat. The table below summarises the data currently held by GMEU, in terms of the species recorded and the age of the records. This indicates a relatively low level of recording effort e.g. an average of two records per year for Daubenton's Bat and none reported in the past five years.

Species	Records (no.)	Year Range
Brown Long-eared Bat	2	2005 to 2015
Common Pipistrelle	101	2005 to 2017
Daubenton's Bat	32	2001 to 2015
Myotis sp	4	2012 to 2017
Nathusius's Pipistrelle	6	2014 to 2015
Natterer's Bat	2	2003
Noctule Bat	98	2001 to 2017
Nyctalus/Eptesicus agg.	2	2003 to 2015
Pipistrelle sp	31	1996 to 2017
Soprano Pipistrelle	33	2002 to 2019
Whiskered Bat	4	2015

There appears to be no information available on the populations of individual species within the proposed NNR but this requires further investigation.

The map on page 28 shows the location of Myotis bat species records across the main wetlands, although the species probably occurs at other sites e.g. the Amberswood Common SBI Lake; rather than showing the species distribution, it reflects the sites that have been surveyed. There is only one known roost for Myotis species (Daubenton's Bat), at Poolstock Brook Culvert (SD 5786 0402) under the new A49 Goose Green to Westwood Park link road, most recent record submitted in 2004.

The South Lancashire Bat Group (SLBG) has responded positively during initial discussions on the Wigan NNR and will have the capacity in summer 2021 to carry out surveys. We have agreed a provisional list of the following sites.

Amberswood Common SBI

Bickershaw Colliery SBI

Low Hall LNR/SBI

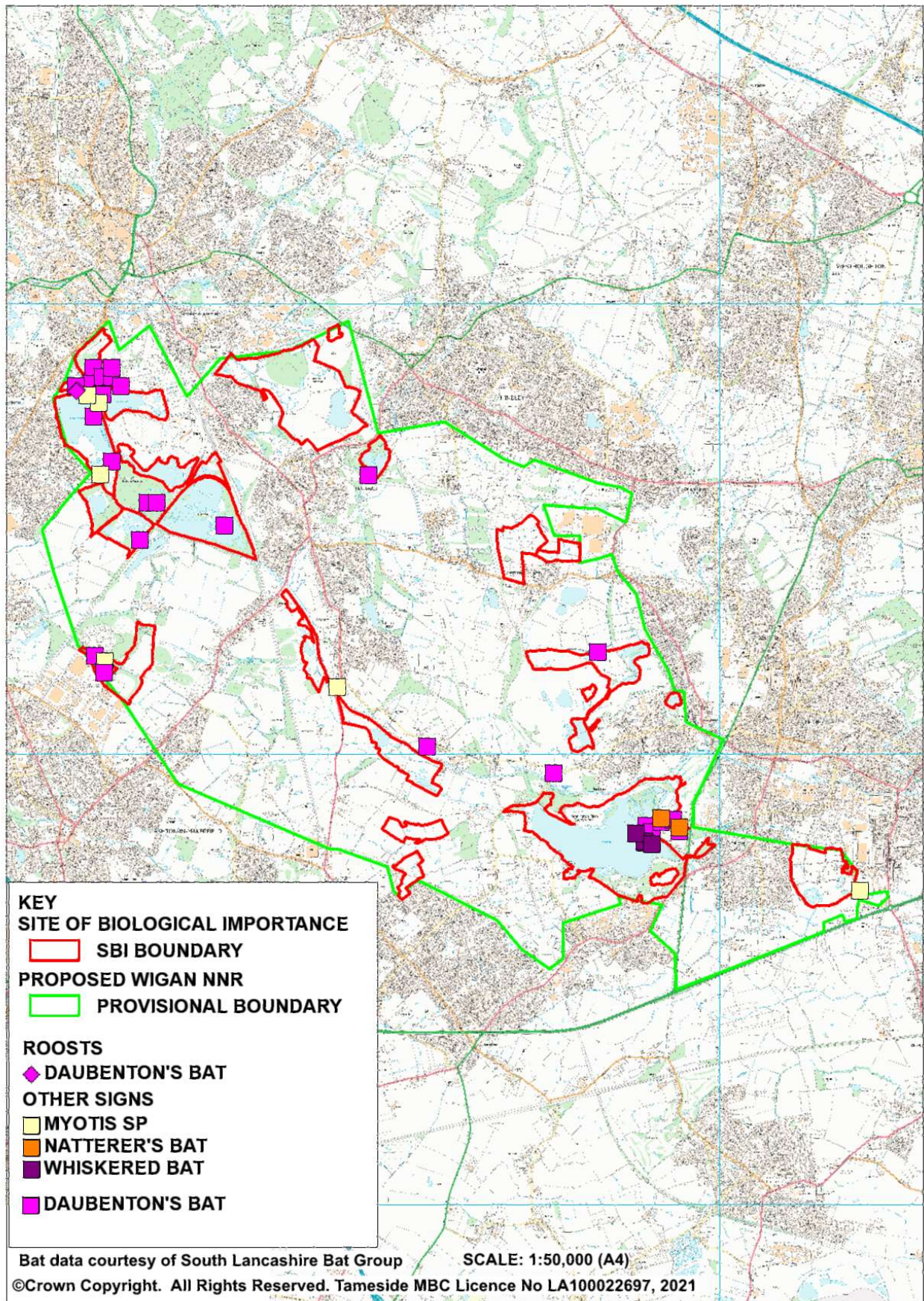
Pennington Flash LNR/SBI

Scotman's Flash SBI

Viridor Wood - the tunnels under the railway line at Coffin Brook are potential Myotis roost sites, which to the best of our knowledge have not been surveyed before.

SLBG have suggested the focus should be on Myotis species and Noctule bats, which eat different types of insects and whose behaviour is very different to each other. Noctules are easy to spot and detect around Wigan borough and Daubenton's Bats and other Myotis species are associated with the flashes.

Myotis sp. Bat Records



Other Taxonomic Groups

The assessment of additional taxonomic groups not covered by this report may identify other notable species. In particular, butterflies, moths, other invertebrates, bryophytes, fungi and reptiles. For example the invertebrate fauna at Barlow's Farm SBI is described by the Pondlife Project as varied with a total of 37 species recorded. This includes 25 species of beetle including the nationally notable diving beetle *Ilybius guttiger* and the local beetles *Hygrotus impressopunctatus* and *Suphrodytes doralis*. Mark Champion, Lancashire Wildlife Trust has highlighted the importance of the Wigan Flashes for plants including Dune Helleborine (until recently one of only three known inland sites for the species) and Marsh Helleborine, which occurs in large numbers. The wider area extending across Wigan, Bolton and Salford is the only place in the world where Southern Marsh X Northern Marsh hybrid is found and where the two parent species intergrade and gene flow occurs.

Survey Recommendations to Fill Data Gaps

Thanks to the dedication of volunteers and professionals over many years, a significant amount of high quality data have been collected from key sites across the proposed NNR. However, gaps do exist both geographically and taxonomically. Additional surveys starting in spring 2021 would contribute towards strengthening the evidence base for a potential future designation. Priority should be given to the following species and taxonomic groups, and the discussions already initiated with the relevant voluntary recording groups, and County Recorders should continue with the aim of drawing up a survey action plan.

Willow Tit - GMEU, in consultation with Mark Champion, to draw up a list of priority 1-km squares, which have not been surveyed in recent years, and target these for coverage by experienced recorders and new volunteers.

Water Rail – the Lancashire Wildlife Trust carries out tape-luring surveys annually at the Wigan Flashes. The other key sites, in particular the Abram Flashes and Bickershaw CP should be surveyed to produce a new population estimate for the proposed NNR.

Long-eared Owl – surveys in late May and June to locate hunger-calling juveniles would undoubtedly significantly increase the known breeding population. Many pairs currently go undetected.

Terrestrial Breeding Birds – extend CBC surveys already carried out at the Wigan Flashes to other key sites. We would need to recruit volunteers and train them in the survey methodology. We would also need to review our capacity to analyse the territory maps produced by the surveys, or train volunteers to do this.

Wetland Breeding Birds – continue and extend to other wetlands the Carbon Landscape Citizen Science Project's surveys. Continue with the Lancashire Wildlife Trust's surveys at the Wigan Flashes.

Wetland Birds Post Breeding – there is a gap in survey coverage between the breeding wetland bird surveys and autumn/winter WeBS counts. Synchronised surveys from June to August at the main wetland sites, using WeBS methodology, would capture data on post-breeding moult flocks. Counts at Woolston Eyes SSSI have established that numbers of Gadwall and Shoveler peak during the summer, and the same may be true at the proposed NNR sites.

Bats – the South Lancashire Bat Group are interested in carrying out surveys in 2021 (see page 26 for the list of sites) to update our data which is at least five years old and fill in gaps in coverage at Amberswood Common and Viridor Wood. The target species would be *Myotis* (including Daubenton's Bat) and *Noctule*.

Great Crested Newts – Obtain population data from Natural England to establish the importance of the populations at key sites within the proposed Wigan NNR. Discuss with GMEU and the Amphibian and Reptile Group of Lancashire the scope for carrying out surveys to fill in gaps in population data.

Conclusion

The sites covered by the proposed Wigan NNR are of high value for biodiversity at both a Greater Manchester and regional level. However, further surveys and evidence gathering will permit a better assessment of the potential for NNR designation. The Willow Tit population is clearly of national importance and may hold the key to designation. Whilst we hold good data for the species from key sites, we need to establish the total number of pairs present in the wider landscape to arrive at an accurate population estimate.

The provisional boundary shown on the maps included in this report encloses the main wetland sites. However, this is a proposal intended for discussion and may be subject to amendment once other species and factors are taken into account.

References

Drewitt, A.L., Whitehead, S. and Cohen, S. 2020. Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 17 Birds (version 1.1). Joint Nature Conservation Committee, Peterborough.

Richard K. Broughton, Wayne Parry & Marta Maziarz (2021) Wilding of a post-industrial site provides a habitat refuge for an endangered woodland songbird, the British Willow Tit *Poecile montanus kleinschmidti*, Bird Study, DOI: [10.1080/00063657.2020.1863333](https://doi.org/10.1080/00063657.2020.1863333)

Source for 1% population thresholds

Population estimates of wintering water birds – Frost et al
British Birds 112: March 2019 Pages 130-145

Population estimates of birds in Great Britain and the UK– Woodward et al
British Birds 113: February 2020 Pages 69-104

Source for BoCC status

Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man – Eaton et al.
British Birds 108: December 2015 pages 708-746

Source for County Willow Tit Population Estimates

Rare Breeding Birds in the UK in 2018 – Eaton et al
British Birds 113: December 2020 Pages 737-791

Bittern Population Estimates

Eurasian Bittern distribution and abundance in the UK during the 2009/10 winter
- Wotton et al
British Birds 104: November 2011 Pages 636-641

Summary of the 2019 Bittern Breeding Season

Wotton, S
Species Monitoring and Research, RSPB Centre for Conservation Science

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Amphibian and Reptile Group of Lancashire (ARGL)
British Trust for Ornithology – Heronries Census data
Greater Manchester Bird Recording Group (GMBRG)
Leigh Ornithological Society (LOS)
South Lancashire Bat Group
WeBS data courtesy of the British Trust for Ornithology

Appendices (see Zip file)

Appendix 1 – BTO WeBS data analysis 2014/15 to 2018/19

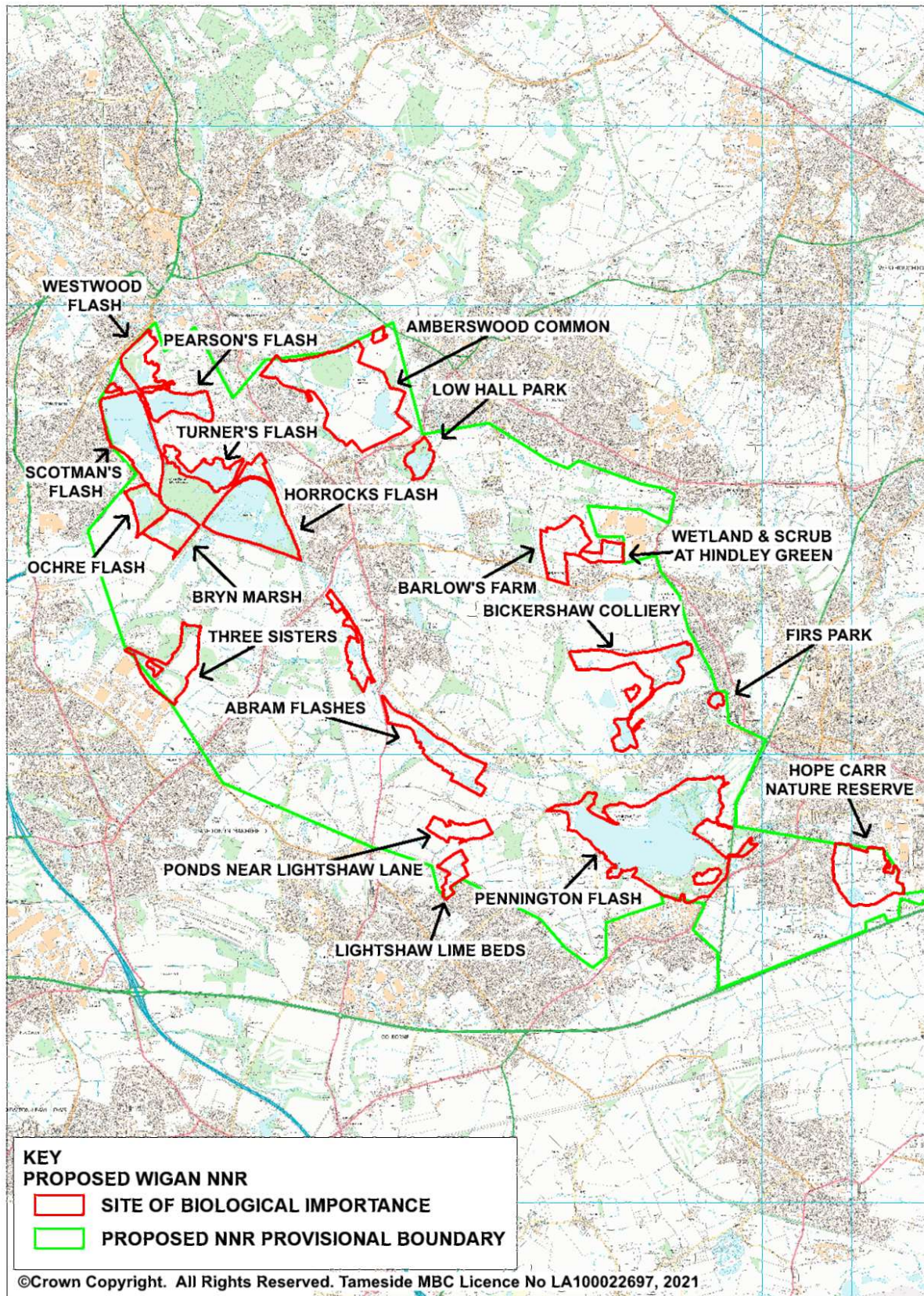
Appendix 2 – GMEU WeBS data analysis 2015/16 to 2019/20

Appendix 3 – Willow Tit data analysis

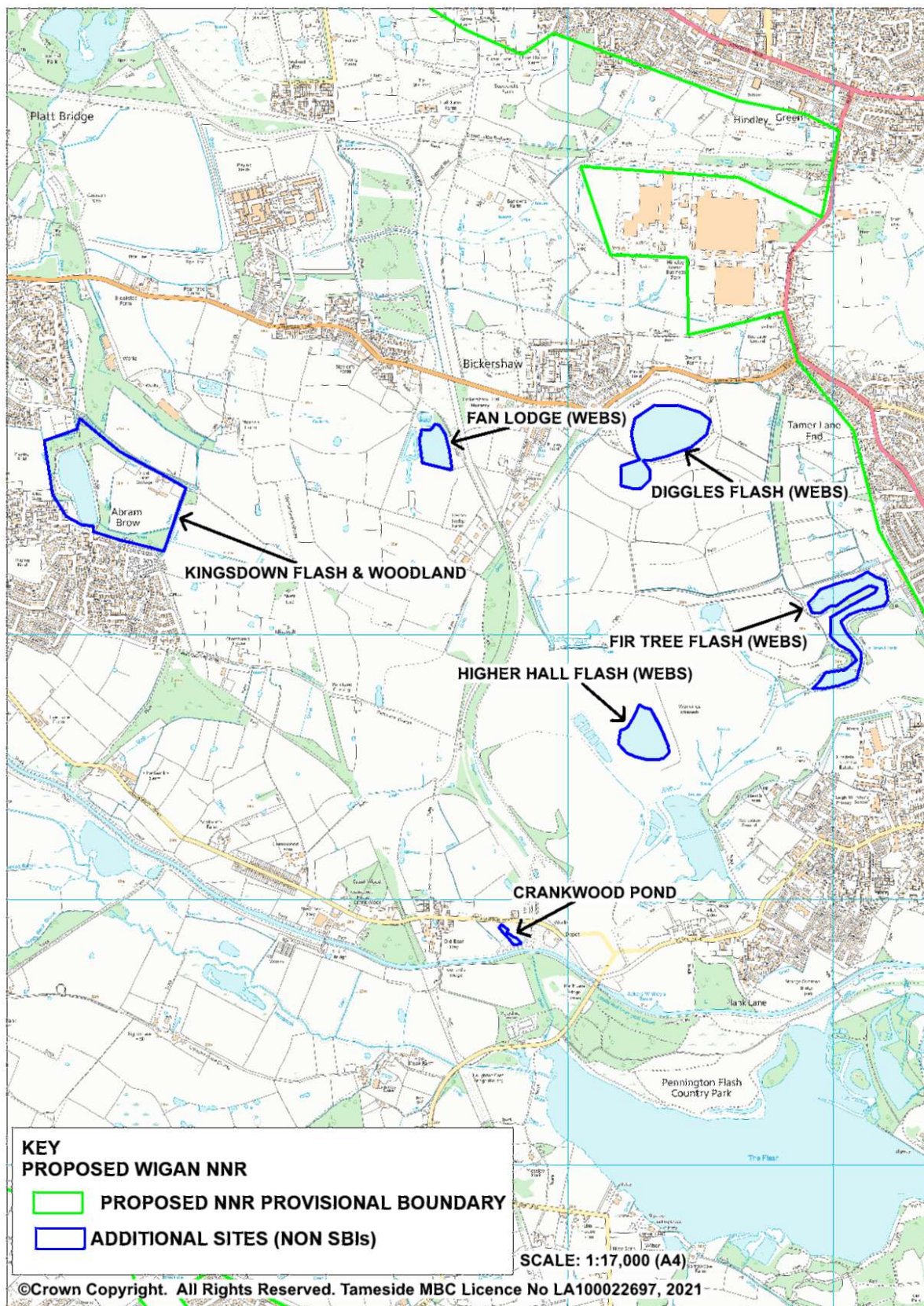
Appendix 4 – Wigan Flashes CBC Summary 2014 to 2019



Appendix 5a – Sites of Biological Importance Included in Data Analysis



Appendix 5b – Additional Sites Included in Data Analysis



Most WeBS sites are shown on the SBI map on page 32. Kingsdown Flash and Woodland supports one pair of Willow Tits but WeBS counts have not been carried out in recent years.