IPSWICH HOUSE SPARROW SURVEY 2016

7 March 2017
Issue 2

Richard Mudhar

The House Sparrow, Passer domesticus, is a common garden bird, but there are far fewer now than there were in the 20th century. The RSPB Ipswich Local Group surveyed the sparrows of Ipswich to see how widespread they were in the town in 2016, this documents the results.

Ipswich House Sparrow Survey 2016

RICHARD MUDHAR

Much has changed since a previous sparrow survey of Ipswich 2006 – there is a better understanding of the issues facing the urban sparrow population due to the work of the BTO and the Kate Vincent PhD paper. In 2011 the BTO formulated a best-practice protocol for censusing house sparrows in the urban environment. The 10th anniversary of the original survey is a good time to repeat the survey, and bring us up to date with how Ipswich's sparrow population is doing.

PROJECT OBJECTIVES

Any bird survey is a challenging undertaking, and both the environment and the sparrow aren't typical of the usual places a bird survey is undertaken.

The aim of the survey is. It is a little bit different from typical bird surveys, which are trying to gauge the density of wide-ranging birds over wide areas. The survey objectives include:

- To find out where sparrows are in Ipswich
- To find out where there are no sparrows
- To make a longitudinal comparison with a decade ago
- To raise awareness
- To collect historical anecdotal reports, accepting the variability of recall ;)
- To compare the different habitats
- Seeing how sparrows colonise new developments if at all

Typical bird surveys take great effort to even out observer effort and area covered. This is hard in a complex heterogeneous environment like a town, and with limited resources

We took two approaches, to gain qualitative and quantitative results. A questionnaire for residents drew qualitative results. This was easily achievable but does come with inherent biases. To find out how sparrows were doing we undertook a controlled-effort survey of a planned sample of the town. This gives us continuity of method with the first survey, while allowing us to improve on some of the survey techniques to get a better overview.

QUESTIONNAIRE FOR RESIDENTS

I would like to thank the many Ipswich residents and those from the surrounding area who took the time to send these in. We received 125 responses. The results seem to be more mixed than the story of persistent decline that we got in 2006!

This is qualitative, but focuses on the observer with a detailed knowledge of the sparrows at a particular point and replicates the 2006 survey questions. The advantages are we can collect details about particular sites, history and identify negative sightings or places sparrows have become locally extinct. It paints a picture of how people feel their sparrows have changed over the last few years.

Results:

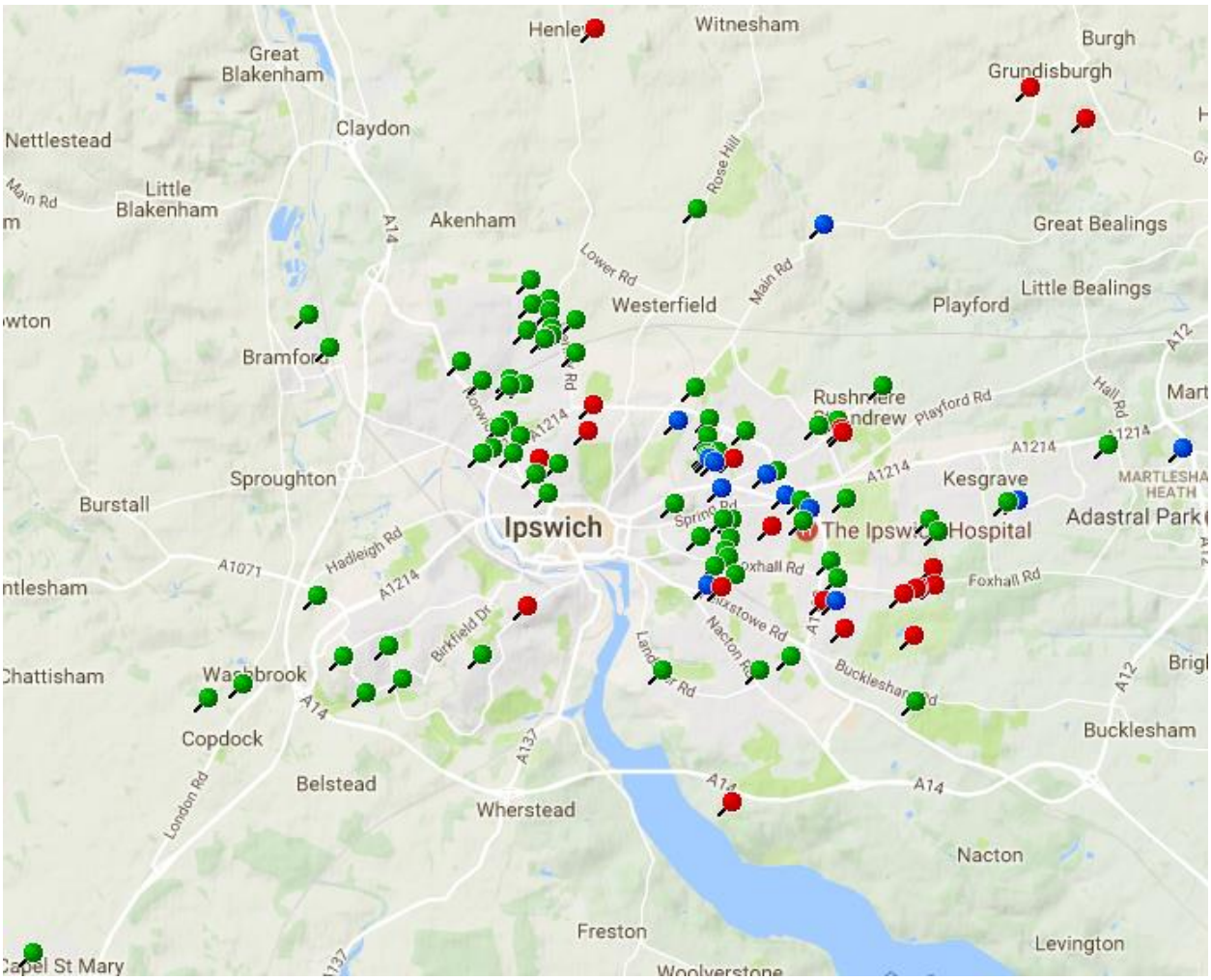


Figure 1 Green icons show positive reports of sparrows, red ones show null reports and blue points show reports that indicate a decline in sparrows. I would like to thank the many people who have contributed sightings and observations to this survey. This is a combined map of questionnaire results and a bicycle survey done in the breeding season. The error in the markers is typically a radius of about 100m.

An interactive version of this map can be found at [1] which shows numbers reported and any observations made.

One of the things that was telling in the 2006 survey[2], but is hard to put on a map or structured way, was the comments, which were a narrative of the fall in sparrow populations as recalled by residents. I've taken a

[1] http://richardmudhar.com/sparrows/2016/questionnaire_map.html
[2] Orwell Observer, Winter 2006 edition. An online version of the report is on http://www.richardmudhar.com/sparrows/sparrows-of-ipswich-2006.html

selection of the ones we received this time, which tell two stories. One is the background of decline, but unlike in the mid-2000s there does seem to be some hope in that sparrows can sometimes return, even after an absence of many years.

- The flock here has declined by up to 50% since we moved here in 2002
- About 5 years ago there were many sparrows living in thick bushes at the end of my road, Brookhill Way (near the Nuffield). One day I came home and 3 men from the council were cutting down the bushes...
- Large colony of sparrows now reduced to a handful
- Think the crows & starlings displaced from nesting in my neighbours gutter
- We have lived here for over 30 years. During that time the number of sparrows declined, to a point where we did not see any at all. Then a year or two later, maybe 10 years ago, we saw a sparrow or two back in the garden and the numbers have gradually built up
- We have lived here for 3 years and confirm we used to see up to 12 most days.
- Much fewer than in previous years
- sparrows regularly nested in hopper on a down pipe. they were there every year until about 10 years ago
- Since looking out for sparrows to fill in this questionnaire I have only seen two. We used to have lots more visit the garden (hopefully more will come as time goes on!)
- There is no doubt that there are far fewer sparrows, due, I feel, mainly to the to the proliferation of plastics soffits and fascias, and also because they are prevented from visiting the roof space close to its guttering
- Until about 10 years ago regularly had a pair of sparrows visiting front garden vegetation and feeding. This is an Edwardian mid-terrace house & I believe they nested in the sofits of the next door house which were poorly maintained.
- Once a numerous bird in my garden. Also large flocks (1000+) visited the adjacent farmland opposite my house at grain harvest time. A small colony exists 200m away but have never been seen in this well watched garden.

but there are also signs of hope...

- When we first moved in about 10 years ago it was a rare thing to see a house sparrow in the garden. Over the last 2 years we seem to have collected about 9/12 in the garden. Although they disappear in the breeding season but reappear when the young come
- Colony of 20+sparrows which have been here for many years
- Been living in my hedge for a few years, approx 7-9 on average
- A few small groups locally, triple nest box put up - successful this year for the first time after 2 years with no interest. One pair nesting in central box but usually 3-5 birds around the nest site in privet hedge.
- Moved here in 1969. About 6 sparrows regularly seen. Numbers dwindled till none seen. In last 2 years 1 male seen infrequently. Delighted recently to see a male and a female more frequently. Long may they stay and increase!
- Didn't have any for 2/3 yrs after moving in but aware of them at top of road. Now they visit our garden regularly and often in reasonably sized groups
- Sparrows moved south in to the gardens north of Dales Road and can be heard from our garden. Last summer about 10 sparrows would sit on the hedge at the bottom of our garden. At the moment we have a male and female as regular visitors
- Colony, probably more than 20, currently nesting around the locality on different houses, several young already seen/fledged. Tend to spend much of the day in a bush on side of house. Use seed feeders and bird baths, and dust bathe on the borders.

- We had not sparrows for several years but they came back about three years ago
- They nest under the eaves of a number of houses and congregate in a number of large privet hedges on the borders of local gardens. The proximity of the trees / shrubs on the embankment of the adjacent Felixstowe railway line is another factor to attract them
- We have a small resident flock that frequent bushes in local gardens. They spend a lot of time in bushes and trees but not sure where they nest. I have had a sparrow nesting box but it has never been used in 10 years
- They congregate on and in large privet hedge opposite and fly across road and also to my back garden, wait to be fed, bring their fledgelings (not many this year).
- Large colony of dunnocks co-exist with the sparrows. Numbers have remained relatively stable over the last 8 years
- 1st time they have used the nestbox since put up 10 years ago. Only returned to the garden in 2015 after 20 odd years when small groups used to dust bath in northwest corner. 4/5/16 1st attempt. Nest 4 eggs - 3 young fledged 2st - 24th.
- There are small groups of sparrows in very limited sites in the village (Grundisburgh) but I cannot attract them to my garden
- We had no sparrows for quite a few years but for the last couple of years they seem to be coming back. At the bird count I counted 6 so maybe they have gone elsewhere. We are lucky living with the Sidegate allotments directly at the bottom of one garden.
- We always had a colony of about 30 house sparrows in our garden and hedges. In the summer our neighbours acquired two cats & for a while the sparrows disappeared, but now seem to be returning. Our garden adjoins Sidegate Lane allotments so we do see quite a lot of birds / wildlife
- From 2014 no sightings, 2015 one or two and good increase this year

So while our sparrows have taken losses, there seems some hopeful signs, it isn't a continuous tale of woe. This is better than in 2006, which seemed to be a notable tale of decline over the preceding decade. The drop in numbers of sparrows became a matter of public concern in the years following the millennium, and anecdotally the peak of the noticed decline seems to be around the year 1997[3].

A CONTROLLED-EFFORT SURVEY OF THE TOWN

This is based on the BTO survey protocol[4] which specified the following:

- The unit of record is the active nest – identifiable by the chirping male sparrow or adult birds entering with nesting material. Male sparrows may create more than one nest to attract females, but if a chirping male is observed then there are sparrows there. Mark with a N
- Also recommend mapping all adult males. Mark with S – or 4S if more
- Surveys should be targeted to the first nesting attempts, where the young do not cause confusion. In the UK this means April and May
- Timing - counts ideally conducted within first 2-3 hours after dawn and certainly before midday (when sparrow activity drops markedly). . Earlier better to minimize human disturbances and noise.
- To detect high proportion of nesting attempts – suggest 3 visits with 10- 14 day intervals in between.
- Technique walk slowly along all accessible routes. It pays to design the route first on paper, this is hard to do in the field
- Do not survey on wet or windy days (wind speed >15 kph = 9.32 mph)

[3] What is killing our sparrows? Independent Newspaper, 26 May 2000
[4] Protocol for censusing urban sparrows, DeLaet, Peach, Summers-Smith, BTO, British Birds 104 May 2011 p255ff

- The survey areas recommended are 10 to 15 hectares, this aligns well with the 2006 survey grouping of 300x300m squares (=9 hectares). A 350m x 350m square would be about right, though a poor fit to the OS grid.
- Plots should be separated by minimum of 50m (satisfied – this is 650m in our case)
- It takes approx. 2 hours to survey 10- 15 ha of suburban habitat.[5]

RESULTS

The best way of presenting the relative density of sparrows with the resources we have available is using a heatmap from Google Fusion Tables. The largest circles and the warmer colours show where the density of sparrows is highest. The red dots show samples which we did not survey for some reason, so although the shapes of the hotspots may change if we did cover these, by far the most of the town has been sampled.

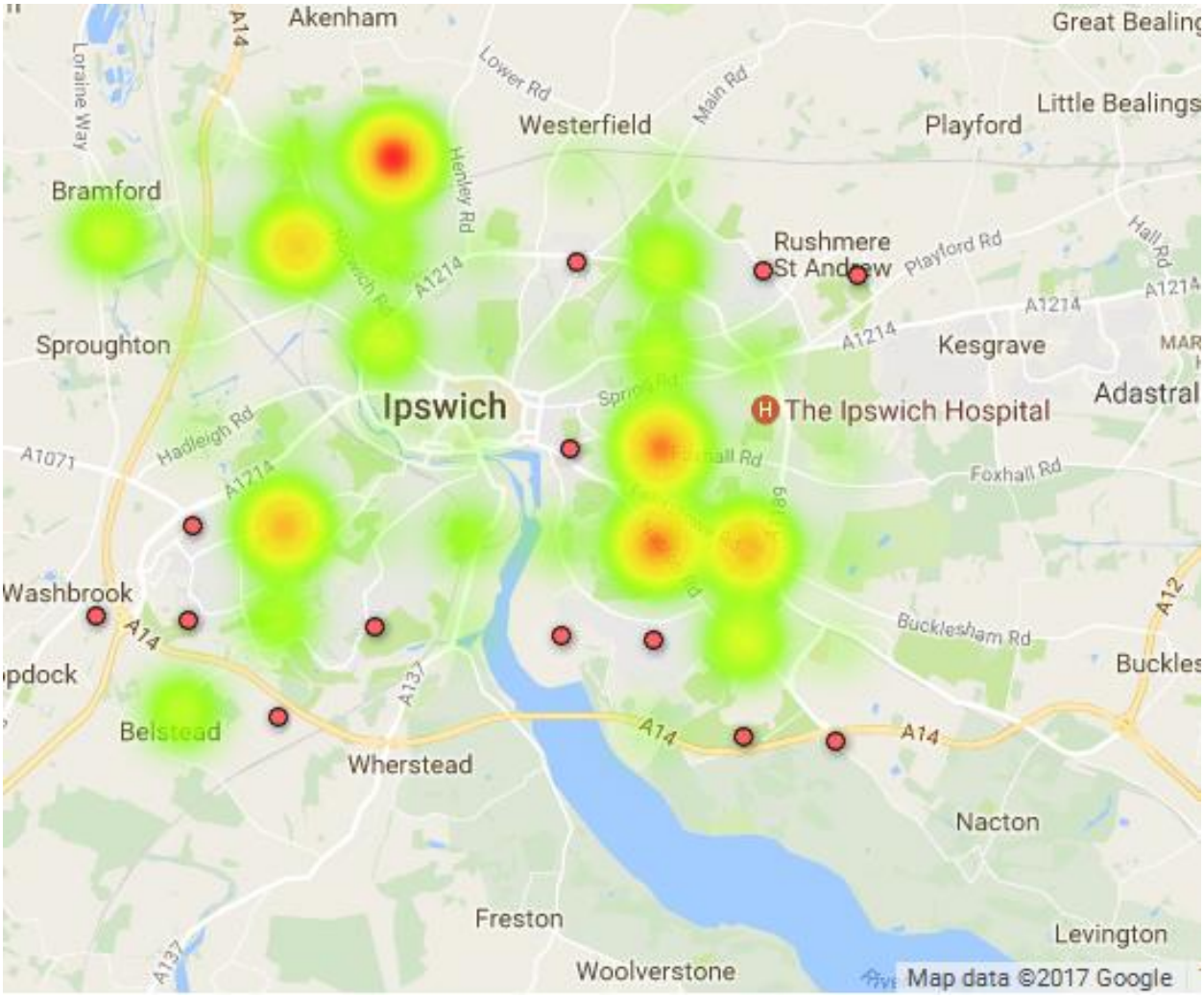


Figure 2 Sparrow density heatmap – red dots are unsampled sites with no data

Variation of Distribution

[5] We found it took about half this time for an observer with previous experience

As can be seen from the heatmap, the sparrows are distributed very unevenly in the town. Each survey square was 350m by 350m, which is about 1/8th of the 1km grid square which was the sampling raster. A histogram of the sparrows observed shows the difference between sightings reported across the sample squares. We observed a total of 184 sparrows were observed. It is important to note this is a sampled survey – sampled in both space and time, so this is not the total number of sparrows in the sample areas. We could only observe sparrows on the road-facing frontage of buildings, so sparrows in back gardens and other inaccessible areas will not be recorded.

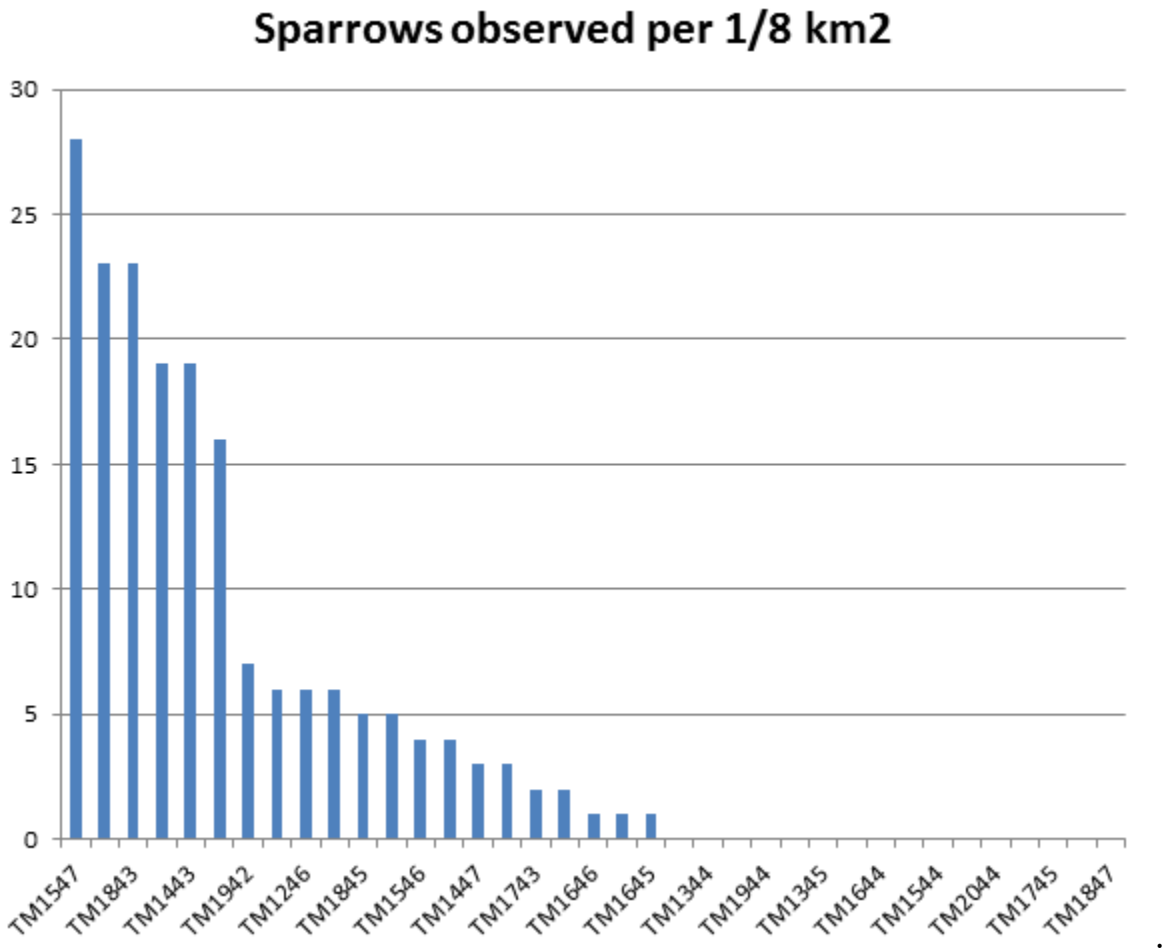


Figure 3 Distribution histogram of the number of sparrows (derived from the maxima of multiple visits as per the WGUS survey protocol) across the surveyed grid squares. Each survey square is 0.123 square kilometer, approximately one-eighth km2.

Comparing habitats

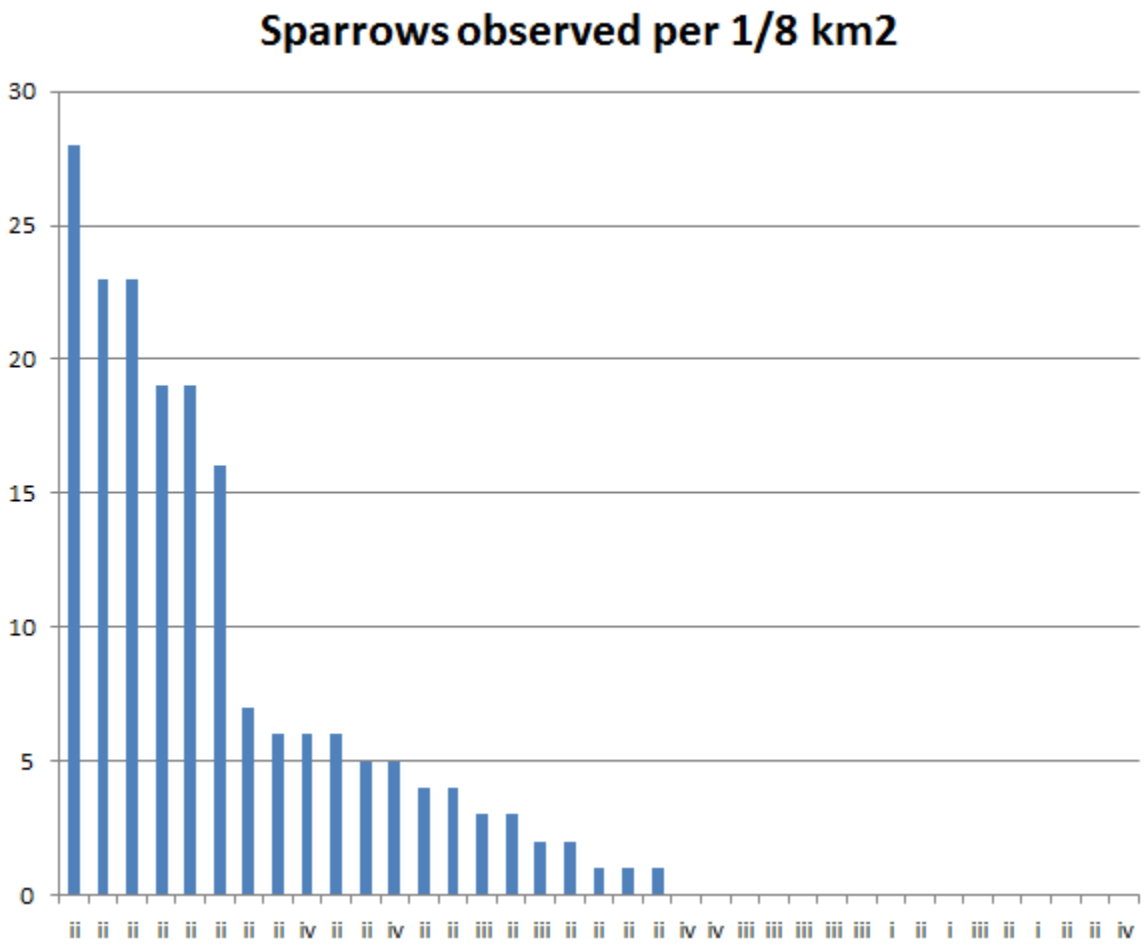


Figure 4 Histogram of observations per square (y axis) against square type (x axis), ordered by number of sightings

Habitat type[6] ii, residential suburban, was the most successful for sparrows, followed by rural villages (iv). Town centre locations were very unfavoured, with nil results. Surprisingly, our urban green spaces also showed a dearth of sparrows – none were observed in the surveys in Christchurch Park. The cemeteries also showed little sparrow occupancy.

[6] (i) Town/city centre, (ii) Residential suburban, (iii) Industrial areas/estates, (iv) Rural villages

Colonising new developments

Only one example of sparrows colonising new-build developments was found. This was the new-build at the end of Bramford Lane

Figure 5Sparrows colonizing a new development – the only one found

The estate is shown in yellow, the five green flags denote males calling from potential nest sites. The linear green feature at the south of the estate which continues past the A14 is an old hedge running by a small stream. Sparrows were audible in this hedge but not visible, and this estate is on the edge of a larger group of sparrows. This is notable by being an exception; all other new build from the last 20 years or so seemed to be a sparrow-free desert.

METHOD - SURVEYING IPSWICH

Ipswich covers about 55 square km. Spatial sampling is an established method of reducing the survey effort; rather than trying to survey 55 1km squares exhaustively we could focus on the south-western quadrant of each square which would make the survey task much more tractable. Taking a 350m by 350m square would match the BTO survey protocol 10-15 hectare target, and indeed match reasonably well with the 300m aggregation[7] of our 2006 survey.

Applying this approach[8] and rasterizing the sample grids with the OS National Grid (1km squares) would look like this. In an American or new-build city there would be some concern about sample bias from the interaction between the regular sampling raster and the street block pattern this is not obvious in a town established on organically developed highway patterns.

[7] The 2006 survey recorded the points of the regions covered and aggregated the results into 300m squares. The squares were not predefined / surveyed with controlled effort.
[8] More detail of the survey blocks can be seen at http://www.richardmudhar.com/sparrows/2016/survey-blocks.html

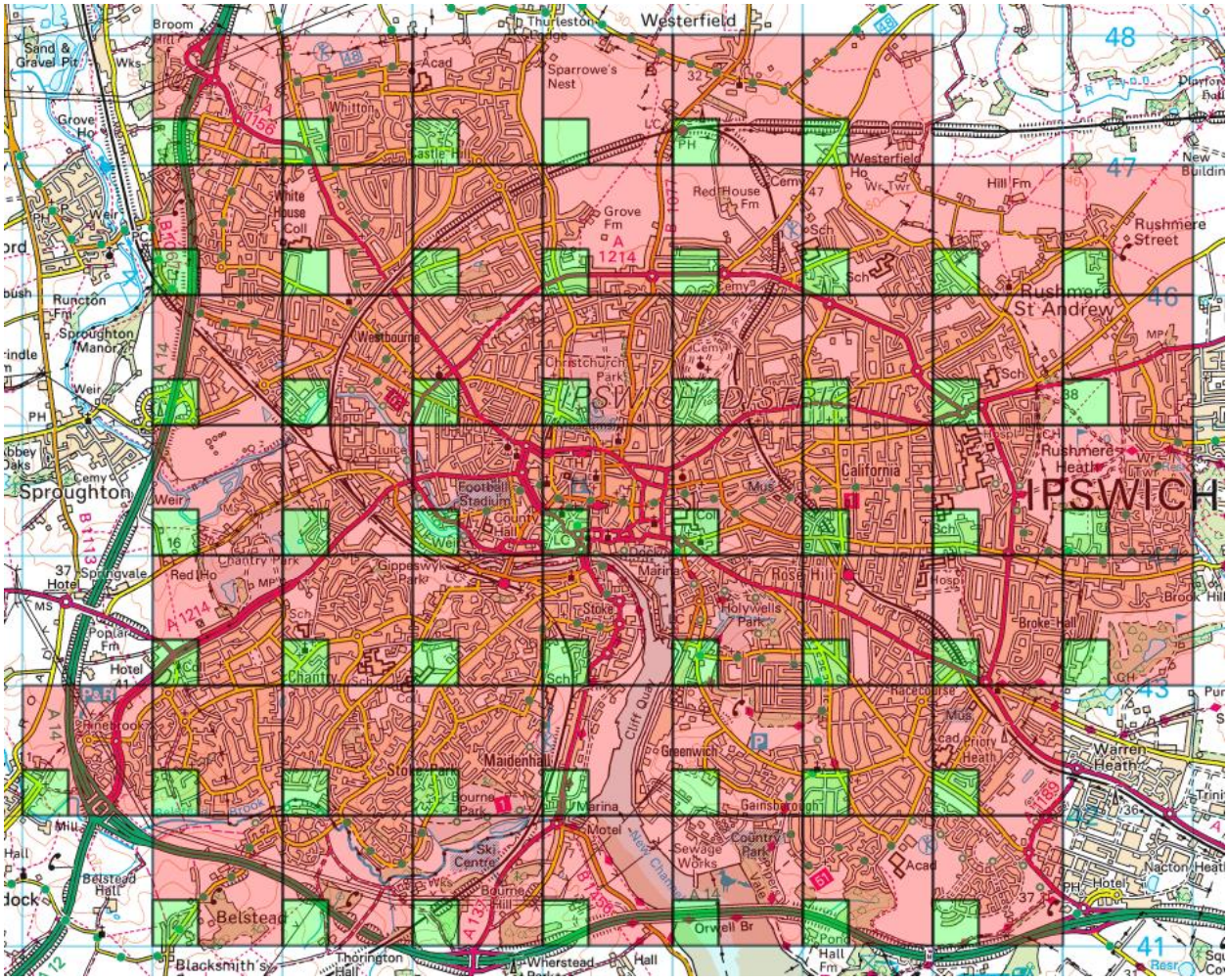
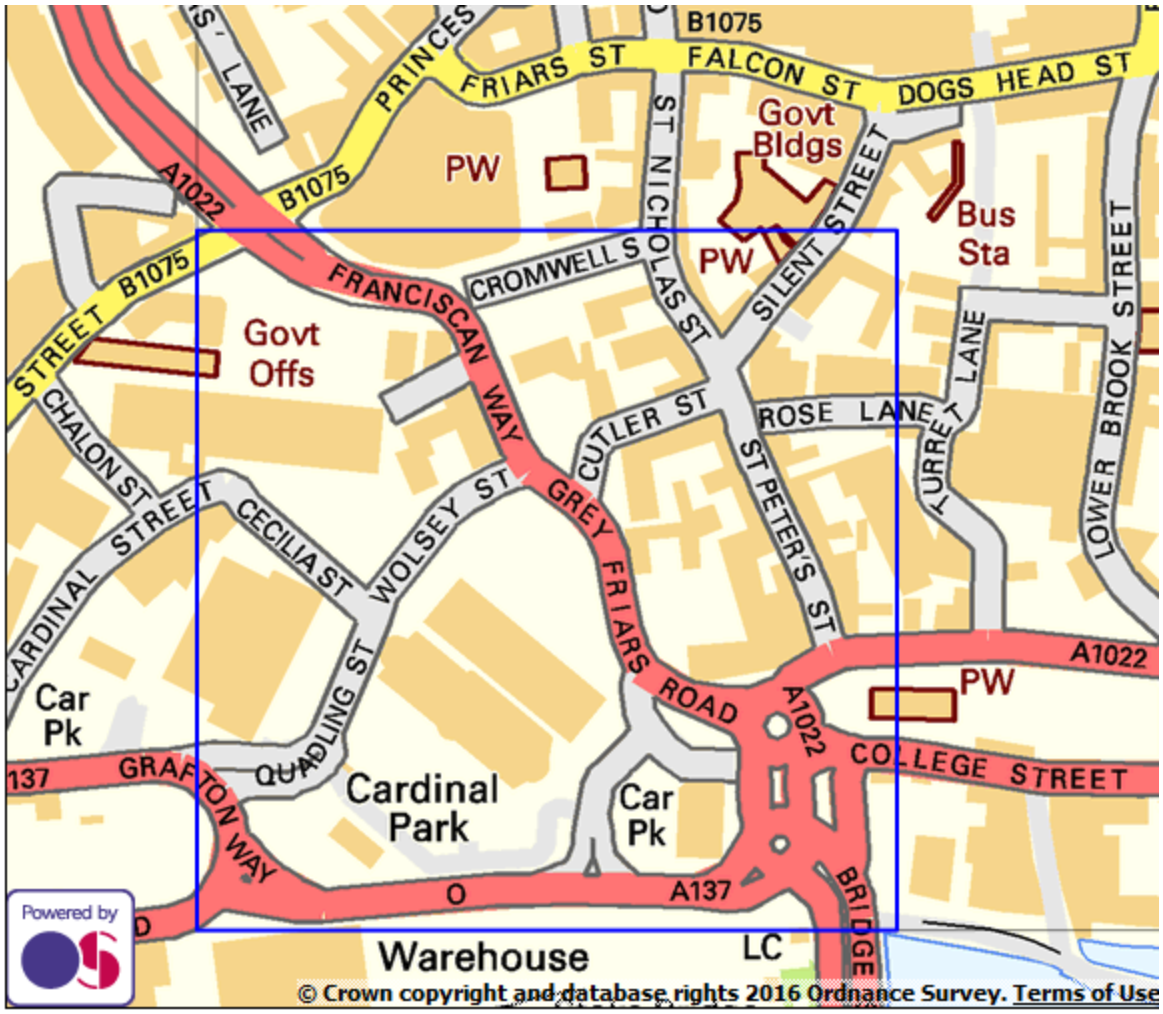


Figure 6 Survey overview

The green areas represent 350m by 350 squares aligned on the National Grid 1km squares. There is nothing particularly fixed about the 1km grid spacing, but it makes it convenient to locate on a map.

The BTO survey protocol suggests using a 1:1250 scale map showing individual buildings. Selecting the marker for a square in our OS OpenSpace website shows us this sort of detail.



Map Square TM1644

The survey square is only the area delimited in the blue square. The larger square shows the total

Records outside the blue square will be recorded as casual records elsewhere, but our priority h

Figure 7 Example detail of map (some of the text is cropped because the blue square is what is important)

Discussion

The heatmap tells us an interesting story of the distribution of the sparrows in Ipswich, which seems to have concentrations in peripheral areas particularly in the northwest and south-east. These two concentrations seem strong, healthy and dense

The town centre seems to be a virtually sparrow-free zone, and they don't particularly seem to favour the urban greenspaces of Christchurch Park. It would be interesting to ask some of our older residents whether they remember sparrows in Christchurch Park in the 1960s, since the age of the surrounding housing would

seem sparrow-friendly. This does, however, correspond to the findings of the BTO research report into habitat preferences[9] in the UK greenspaces are not particularly favoured by House Sparrows.

Another finding from the report that seems to be supported in Ipswich is

Furthermore, the decline of the species appears to vary substantially in severity between different cities and regions, with socially deprived regions being relatively little affected[10]

This is seen in the relative sparseness of sparrows in the north-east of the town where houses tend to be larger, further apart and relative income levels are higher[11].

Comparison with 2006

The 2006 survey also picked up the dearth of sparrows in the town centre. Although habitat is the obvious explanation for the absence in the pedestrianised region, it's notable that in other European towns sparrows will penetrate retail districts. The dearth extends to parts of Valley Road and Constitution hill, which look perfect habitats. But the large north-western colony we have identified has not penetrated that far in the intervening 10 years.

The 2006 survey is patchy, it was done on a smaller scale with less effort. Chris Courtney, Ipswich RSPB Local Group Leader, is to be congratulated at mustering such a large effort this time to get a very good coverage for our quantitative survey, and the comprehensive coverage gives us a better baseline than the 2006 survey.

The comments from the qualitative survey seem to indicate the rate of decline as noticed is less acute, and in a few areas there are hints of a recovery. There does seem to something going wrong for sparrows in Grundisburgh, with two negative reports and no positive reports, but the sample is very small.

While the effort to determine the presence of sparrows wasn't constant-effort, so it is not meaningful to try and compare the presence of sparrows across the decade, the reports of no sparrows were probably more reliable, since these came from residents' reports. Superimposing the 2006 null reports on the density heatmaps shows that the sparrows have not recolonized sparrow-free areas. This matches anecdotal reports that once they are gone from a locality, they are gone.

[9] "Habitat preferences of House Sparrows", BTO Research Report No. 599, June 2011, ISBN 978-1-906204-97-6
[10] "Habitat preferences of House Sparrows", BTO Research Report No. 599, June 2011, ISBN 978-1-906204-97-6 page 11 "Introduction"
[11] Ipswich Borough Ward Profiling Project, Main Report, CREATE Research Centre, UCS Fig 13 Distribution of income Deprivation https://www.ipswich.gov.uk/sites/www.ipswich.gov.uk/files/PCD05.pdf

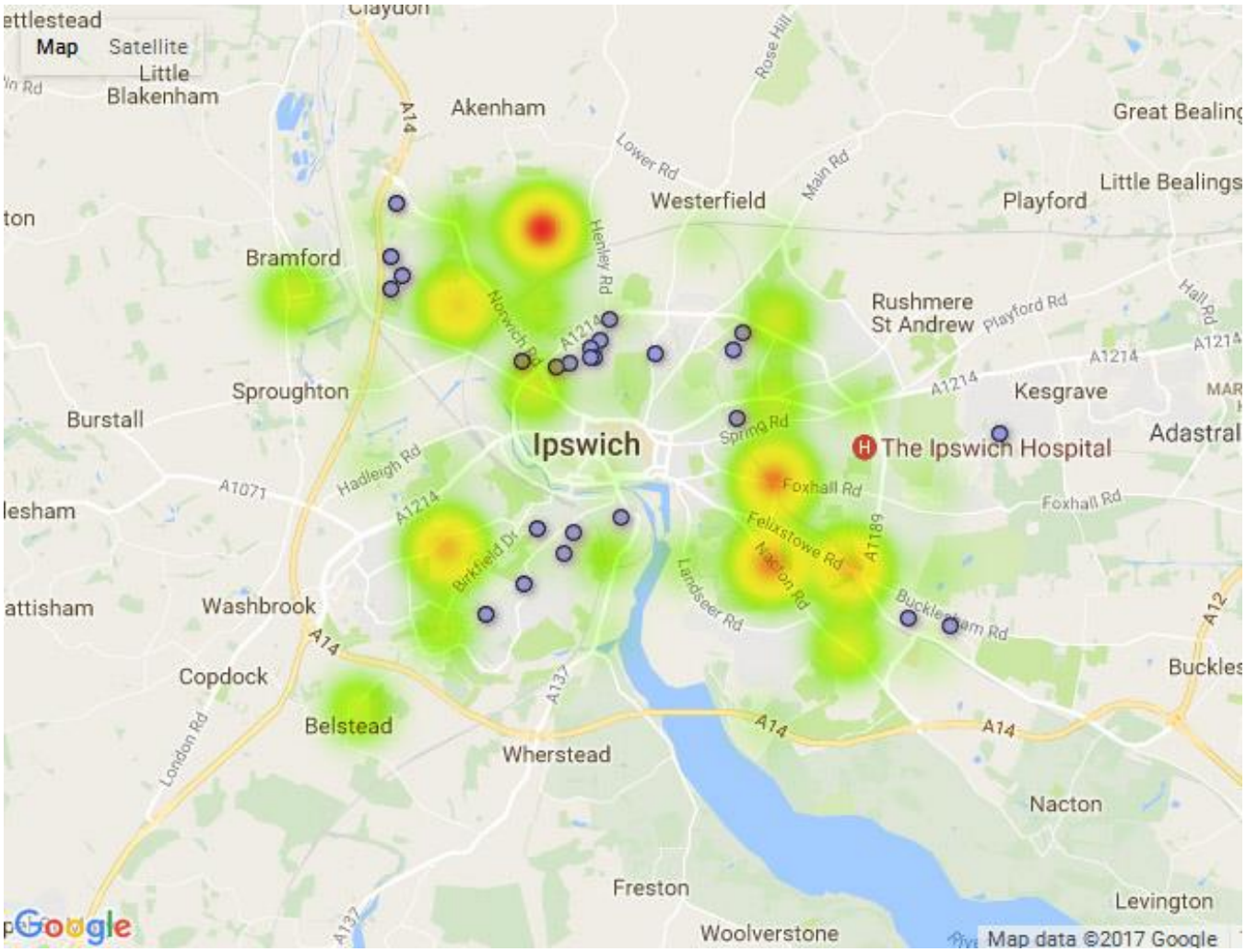


Figure 8 2006 null reports (blue dots) with the 2016 density heatmaps. Reported sparrow-free areas from 2006 have not been recolonized in 2016.

Further study

There is a case to revisit some of the squares we didn't get to survey in the south of the town in the 2017 April-May to see if the south-west hotspot is contiguous and if the south-eastern hotspot extends further south. We would, of course, not be comparing within the same year which may distort results. We can control for this by checking BTO Birdtrack reports for sparrows in the region to see if there is a notable yearly variation. So far the winter of 2016/17 has not been particularly harsh, nor was the one of 2015/6 which bodes well for similarity between the years.

DOCUMENT HISTORY

Date	Author	Changes
25 Jan 2017	Richard Mudhar	Draft A
7 Feb 2017	Richard Mudhar	Draft B, Draft C added histograms by type & new estate colonists
24 Feb 2017	Richard Mudhar	Draft D
25 Feb 2017	Richard Mudhar	Issue 1 update from comments by Chris Courtney et al
7 Mar 2017	Richard Mudhar	Issue 2 include comparison fo 2006 nulls with 2016

APPENDIX 1 TABLE OF RESULTS

The raw data were processed in accordance with the BTO Protocol for censusing urban sparrows, taking the highest number reported in any square. The number of S sightings was added to the number of N sightings and this is the figure in the corrected S column which fed the heatmap (the corrected N value was not used on its own)

Column headings are (left to right)

Early: date of first survey

S: in-square sparrows sighted in early survey

N: in-square nest sites with calling males or sparrows taking nest material in early survey

Late: date of second survey

S: in-square sparrows sighted in late survey

N: in-square nest sites with calling males or sparrows taking nest material in late survey

Surveyor: project ID allocated to the surveyor

Square: 1km grid square of survey. Note the 350m x 350m subsample starts at the bottom left of this, not the centre

Accessible: how many 50*50m subsquares were accessible to the surveyor (out of a maximum of 49). In residential areas this is a proxy for the proportion of the square that has houses

Corrected S: maximum of the early.late sighting + maximum of the early/late nest sightings

Corrected N: maximum of the early/late nest sightings (not used)

Type: (i) Town/city centre, (ii) Residential suburban, (iii) Industrial areas/estates, (iv) Rural villages

Lat/Lon: computed centre of the sample square. For example with TM1841 this centre is TM18154115

Note: any note made

Early	S	N	Late	S	N	Surveyor	Square	accessible	corrected	S	N	type	Lat	Lon	note
						HS001	TM1841	10		0	0	iv	52.02537	1.180187	
						HS001	TM1344	7		0	0	iv	52.05425	1.109284	
08/04/2016	4		24/05/2016	6		HS002	TM1545	37		6	0	ii	52.06246	1.139042	
28/04/2016	1		27/05/2016			HS002	TM1646	28		1	0	ii	52.07104	1.154241	
29/04/2016			27/05/2016			HS002	TM1747	20		0	0	iii	52.07963	1.169446	
27/04/2016			06/05/2016			HS012	TM1944	18		0	0	iii	52.05191	1.196663	
21/04/2016	5	8	14/05/2016	13	10	HS003	TM1844	29		23	10	ii	52.05231	1.182101	
				0	0	HS003	TM1347	5		0	0	iii	52.08119	1.111158	
				0	0	HS003	TM1345	8		0	0	iii	52.06323	1.109908	accessible estimated
				0	0	HS003	TM1346	20		0	0	iii	52.07221	1.110533	accessible estimated
26/04/2016	5		28/05/2016	6		HS003	TM1246	17		6	0	iv	52.07259	1.095963	
12/05/2016	1	2	30/05/2016	1	3	HS003	TM1546	25		4	3	ii	52.07143	1.139672	
27/04/2016	7	1	23/05/2016	9	7	HS003	TM1446	34		16	7	ii	52.07182	1.125103	
29/04/2016	20	8	24/05/2016	8	16	HS003	TM1547	29		28	16	ii	52.08041	1.140302	
22/04/2016	1	2		1	2	HS003	TM1447	34		3	2	iii	52.0808	1.12573	
11/05/2016	3	1	28/05/2016	2	4	HS003	TM1846	25		6	4	ii	52.07026	1.183378	
				0	0	HS004	TM1644	40		0	0	i	52.05309	1.152975	
				0	0	HS004	TM2043	14		0	0	ii	52.04254	1.210581	
				0	0	HS004	TM1544	21		0	0	i	52.05348	1.138412	
24/05/2017	2	1	22/06/2016		1	HS004	TM1643	22		3	1	ii	52.04411	1.152343	
29/04/2016	1		25/05/2016	1		HS004	TM1642	21		1	0	ii	52.03513	1.151711	
03/05/2016	6	1	07/06/2016	2	3	HS004	TM1942	34		7	3	ii	52.03396	1.195381	
						HS004	TM1543	8		0	0	iii	52.0445	1.137782	accessible estimated
						HS005	TM2044	19		0	0	ii	52.05151	1.211225	
01/05/2016	9	1	16/05/2016	15	4	HS006	TM1943	25		19	4	ii	52.04293	1.196022	
14/04/2016			12/05/2016			HS007	TM2042	39		0	0	i	52.03356	1.209937	
17/04/2016	1	2	19/05/2016	1	3	HS008	TM1442	22		4	3	ii	52.03591	1.122595	
27/04/2016	2		09/05/2015			HS010	TM1743	32		2	0	iii	52.04372	1.166903	

22/04/2016	10	2	06/05/2016	18	5	HS010	TM1843	33	23	5	ii	52.04333	1.181462
27/04/2016	2		06/05/2016		1	HS012	TM1945	30	2	1	ii	52.06089	1.197304
28/04/2016	1		05/05/2016	4	1	HS015	TM1845	42	5	1	ii	52.06128	1.182739
07/05/2016						HS015	TM1745	17	0	0	ii	52.06168	1.168174
30/04/2016		5				HS017	TM1341	16	5	5	iv	52.02732	1.107414
07/05/2016	1		28/05/2016	1		HS018	TM1645	24	1	0	ii	52.06207	1.153608
08/05/2016	6	13	30/05/2016	8	8	HS019	TM1443	32	19	13	ii	52.04489	1.123222
02/05/2016	0	0	30/05/2016	0	0	HS019	TM1444	17	0	0	ii	52.05387	1.123848
15/05/2016	0	0	31/05/2016	0	0	HS019	TM1847	14	0	0	iv	52.07924	1.184017

APPENDIX 2 – EXAMPLE GOOD SPARROW DENSITIES

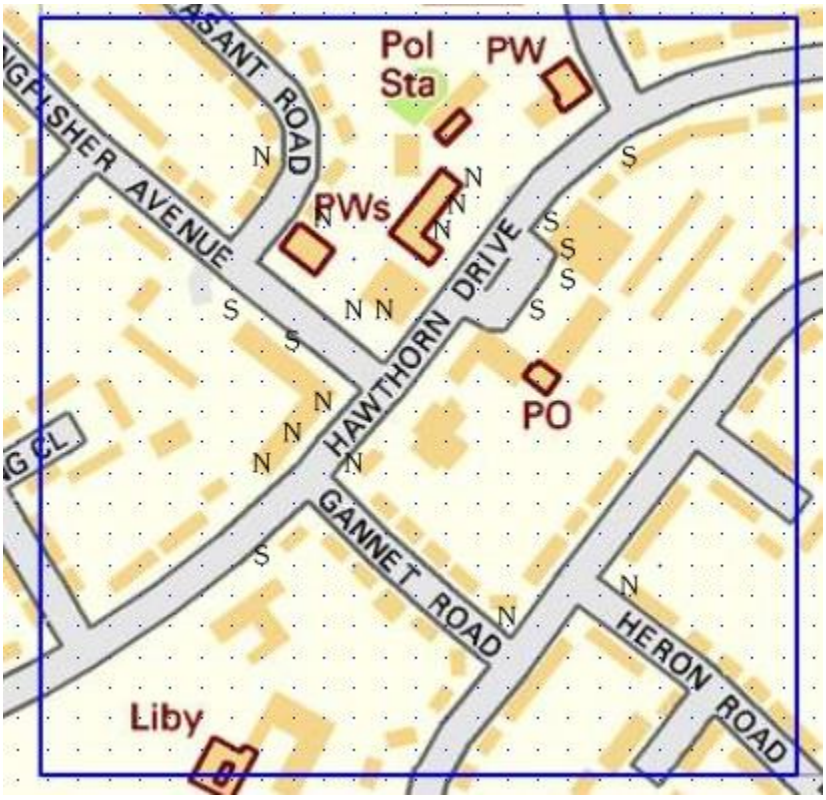
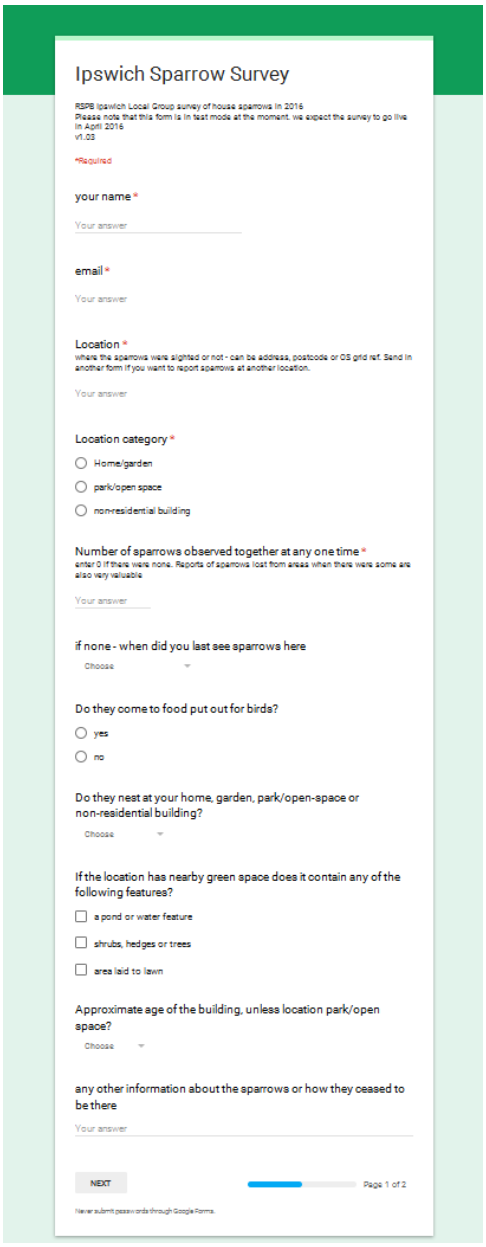


Figure 9 Survey example where a lot of sparrows were found - TM1443 in the northeast

APPENDIX 3 – HOUSE SPARROW QUESTIONNAIRE

The electronic form of the questionnaire used Google Forms and is reproduced below (it was headed Ipswich Sparrow Survey although it is the questionnaire described earlier).



Ipswich Sparrow Survey

RSPB Ipswich Local Group survey of house sparrows in 2016
Please note that this form is in test mode at the moment. we expect the survey to go live in April 2016
v1.03

*Required

your name *

Your answer

email *

Your answer

Location *
where the sparrows were sighted or not - can be address, postcode or OS grid ref. Send in another form if you want to report sparrows at another location.

Your answer

Location category *

- Home/garden
- park/open space
- non-residential building

Number of sparrows observed together at any one time *
enter 0 if there were none. Reports of sparrows lost from areas when there were some are also very valuable

Your answer

if none - when did you last see sparrows here

Choose

Do they come to food put out for birds?

- yes
- no

Do they nest at your home, garden, park/open-space or non-residential building?

Choose

If the location has nearby green space does it contain any of the following features?

- a pond or water feature
- shrubs, hedges or trees
- area laid to lawn

Approximate age of the building, unless location park/open space?

Choose

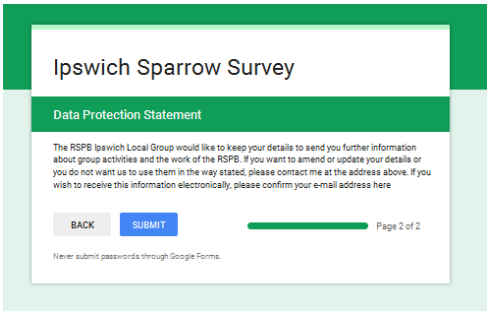
any other information about the sparrows or how they ceased to be there

Your answer

NEXT

Page 1 of 2

Never submit passwords through Google Forms.



Ipswich Sparrow Survey

Data Protection Statement

The RSPB Ipswich Local Group would like to keep your details to send you further information about group activities and the work of the RSPB. If you want to amend or update your details or you do not want us to use them in the way stated, please contact me at the address above. If you wish to receive this information electronically, please confirm your e-mail address here

BACK SUBMIT

Page 2 of 2

Never submit passwords through Google Forms.