



SIX OAKS RENEWABLE ENERGY PARK: WINTERING BIRD SURVEYS 2019-20

Report to Ridge Clean Energy



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SIX OAKS RENEWABLE ENERGY PARK: WINTERING BIRD SURVEYS 2019-20

INTRODUCTION

1. This report presents the results of bird survey work at the proposed Six Oaks Renewable Energy Park, Cambridgeshire, undertaken outside the breeding season to provide ornithological baseline data for the proposed development. It provides baseline data on the wintering bird populations, activity and flight paths within the vicinity of the proposed development site to inform subsequent ornithological impact assessment.
2. The specific objectives of this work were to:
 - Undertake wintering bird surveys of the proposed development site, to determine the numbers of birds present, and the flight activity of key target species.
 - Use this information to evaluate the importance of the site's wintering bird populations.
3. The surveys were designed to take into account Natural England (NE) standing advice¹ and Scottish Natural Heritage (2017) guidance. The surveys were undertaken by Keith Langdon and Mike Hoit, both highly experienced bird surveyors.

STUDY AREA

4. The site is located approximately 9km east of Cambridge, in Cambridgeshire. The wintering bird survey area was chosen to include all areas within the potential zone of ornithological influence of the renewable energy park. The survey area covered a total area of 14.1km² (see Figure 1). It is predominantly open arable farmland and lies mainly within the '*East Anglian Chalk*' NE Natural Area.

¹<https://www.gov.uk/guidance/wild-birds-surveys-and-monitoring-for-onshore-wind-farms>





WINTER BIRD SURVEY METHODS

Wintering Bird Field Surveys

5. The winter surveys included a field survey based on a simple 'look-see' method, counting the bird numbers within a pre-defined survey area (Gilbert *et al.* 1998) and a vantage point survey, monitoring bird flight activity to quantify movement rates across the survey area. The latter focused on the area in which the renewable energy park is located, and included daytime movements and dawn/dusk roost flights.
6. The field counts comprised regular counts of the birds within the wintering bird survey area. Twelve of these surveys were undertaken at approximately fortnightly intervals between October 2019 and March 2020. The counts were carried out as instantaneous counts, recording a snapshot of the birds present in each field at the time it was surveyed. One such count of each field was made each survey day, recording the numbers of all the key species present. Any additional records made outside this time were noted as supplementary records. These snapshot counts were organised to ensure that the full range of times of day were covered in each part of the survey area. The following species were recorded:
 - All ducks, geese, swans, cormorants, herons, coot and grebes;
 - All waders (including lapwing and golden plover);
 - All birds of prey and owls;
 - Large flocks (>100 birds) of other species (except woodpigeon and rook);
 - Any other notable species.
7. As well as counting each species, the behaviour of each flock was also recorded, e.g. feeding/roosting. Birds in flight over-flying the field during the snapshot were also recorded, together with an estimate of their height and direction.
8. Mapping of the habitats and crop types available in the survey area was carried out during the first visit and then again at approximately 2-month intervals through the season, so that habitat availability could be determined and any changes during the study period taken into account.
9. Weather conditions during all observations were recorded, and visits were made to cover a representative range of visibilities, wind speeds and directions (though avoiding extreme conditions where visibility is severely limited (i.e. fog, continuous heavy rain)).

Winter Vantage Point Surveys

10. These surveys enabled flight activity at the proposed development site to be quantified and inform the project impact assessment (SNH 2017). A single vantage point was sufficient, which gave a clear view over the site to a maximum 2km viewing distance (see Figure 1), looking forward from the VP (i.e. no need to look behind). A total of 36 hours surveys were carried out from the VP (including roost flight observations at dawn/dusk) over the October 2019 - March 2020 survey period. All flight lines of target species were mapped, and the flight height of each flock recorded. Target species were the same as those for the field surveys set out above.
11. The VP was selected using the following criteria:
 - It gave a clear view across the development site, with all of the site within 2km of the VP visible as a minimum;



- The survey area could be observed by looking in a 180° arc forward from the vantage point (i.e. no need for the observer to look behind to cover the site) - the focus of the surveys was looking into the development site from the VP.
12. All key birds seen were recorded, irrespective of their distance from the vantage point. Observations were carried out throughout daylight hours but not in periods of reduced visibility (<3km).
 13. Vantage point surveys were carried out for a maximum of 3 hours in a single observer session. Where one surveyor carried out two three-hour blocks concurrently, there was a gap of at least 30 minutes rest period between these surveys (to follow best practice).
 14. During the observation periods, all target species flights were mapped and cross-referenced to the recording form using a numbering system, and the flight height of each recorded. To estimate flight height as accurately as possible, the available reference features (e.g. existing power lines, radio masts) were used. Flight heights were recorded as accurately as possible, i.e. not summarised to height classes. Below 10m it was possible to estimate to 1m, between 10m and 20m to 2m, between 20m and 50m to 5m, and above 50m to 10m. In any case of uncertainty an estimate of the upper and lower range of height was recorded. When birds were observed over an extended period, estimates of flight height was recorded every 30 seconds. The activity during each flight (e.g. striking prey, displaying, food passing) was also recorded.

WINTERING BIRD SURVEYS 2019-20: RESULTS

Autumn/winter field count survey results

15. The bird populations found within the survey area during each of the fortnightly field count surveys are summarised in Table 1. The Table shows the numbers recorded during each survey, and the overall mean and peak counts.

TABLE 1. Autumn/winter bird populations in the Six Oaks survey area during October 2019 - March 2020.

| Species | 31/10/19 | 13/11/19 | 25/11/19 | 09/12/19 | 24/12/19 | 06/01/20 | 20/01/20 | 30/01/20 | 17/02/20 | 28/02/20 | 11/03/20 | 24/03/20 | Mean 2019-20 | Peak 2019-20 |
|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------|
| Sparrowhawk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0.2 | 1 |
| Marsh Harrier | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.1 | 1 |
| Red Kite | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 4 | 0 | 0.6 | 4 |
| Buzzard | 3 | 2 | 0 | 1 | 1 | 5 | 4 | 3 | 2 | 1 | 7 | 5 | 2.8 | 7 |
| Lapwing | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.4 | 17 |
| Golden Plover | 0 | 0 | 0 | 117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9.8 | 117 |
| Black-headed Gull | 72 | 141 | 3 | 3 | 2 | 15 | 430 | 7 | 0 | 21 | 0 | 0 | 57.8 | 430 |



| Species | 31/10/19 | 13/11/19 | 25/11/19 | 09/12/19 | 24/12/19 | 06/01/20 | 20/01/20 | 30/01/20 | 17/02/20 | 28/02/20 | 11/03/20 | 24/03/20 | Mean 2019-20 | Peak 2019-20 |
|--------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------|
| Common Gull | 86 | 8 | 23 | 87 | 25 | 24 | 198 | 29 | 0 | 2 | 0 | 0 | 40.2 | 198 |
| Herring Gull | 2 | 0 | 2 | 18 | 25 | 0 | 7 | 1 | 0 | 6 | 0 | 0 | 5.1 | 25 |
| Yellow-legged Gull | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 1 |
| Lesser Black-backed Gull | 195 | 1 | 2 | 0 | 16 | 0 | 2 | 0 | 0 | 19 | 0 | 0 | 19.6 | 195 |
| Barn Owl | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 1 |
| Kestrel | 2 | 4 | 1 | 2 | 0 | 1 | 1 | 2 | 0 | 0 | 2 | 3 | 1.5 | 4 |
| Peregrine | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 1 |
| Raven | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 1 |

Vantage Point Survey Results

16. The rates of bird flight movement observed across the survey area during the vantage point surveys from the single VP are summarised in Table 2. This gives the monthly mean flight rates observed, and the total number of flights recorded during the survey period.

TABLE 2. Bird flight rates recorded over the Six Oaks wintering bird survey area during October 2019 - March 2020 autumn/winter vantage point surveys. N = 36 hours total observation (6 hours/month).

| Species | Flight rate (birds/hour) | | | | | | Total number of flights |
|-------------------------|--------------------------|------|------|-------|-----|-----|-------------------------|
| | Oct | Nov | Dec | Jan | Feb | Mar | |
| Greylag Goose | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 12 |
| Mallard | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1 |
| Sparrowhawk | 0.3 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 2 |
| Red Kite | 0.3 | 0.4 | 0.0 | 1.7 | 0.0 | 0.5 | 18 |
| Buzzard | 1.7 | 0.3 | 0.2 | 2.7 | 1.8 | 3.0 | 54 |
| Lapwing | 0.0 | 0.8 | 0.2 | 9.2 | 0.0 | 0.0 | 63 |
| Golden Plover | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 12 |
| Black-headed Gull | 8.7 | 7.9 | 4.8 | 124.5 | 0.2 | 0.0 | 874 |
| Common Gull | 1.7 | 14.2 | 32.7 | 86.2 | 1.8 | 0.0 | 857 |
| Great Black-backed Gull | 0.0 | 0.0 | 0.3 | 0.2 | 0.0 | 0.0 | 3 |
| Herring Gull | 0.3 | 9.1 | 83.3 | 2.2 | 0.5 | 0.5 | 602 |





| Species | Flight rate (birds/hour) | | | | | | Total number of flights |
|--------------------------|--------------------------|------|-----|-----|-----|-----|-------------------------|
| | Oct | Nov | Dec | Jan | Feb | Mar | |
| Lesser Black-backed Gull | 17.3 | 17.9 | 2.8 | 2.7 | 2.5 | 0.2 | 262 |
| Barn Owl | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Kestrel | 0.0 | 0.4 | 0.5 | 0.7 | 0.5 | 0.2 | 15 |
| Merlin | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1 |
| Peregrine | 1.3 | 0.1 | 0.2 | 0.3 | 0.3 | 2.7 | 26 |
| Raven | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 2 |

Conservation Evaluation of Wintering Bird Populations

17. The conservation value of the non-breeding bird populations was determined using the criteria specified in Table 3 (from Percival 2007). This includes the criteria adopted by Natural England in Guidelines for Selection of Biological SSSIs (Drewitt *et al.* 2020), using 1% of the resource to define international and national importance (Frost *et al.* 2021). An additional category of regional importance was assigned for species approaching the threshold for national importance and those for which the survey area held a notable concentration in a county context. A further category of ‘local importance’ was used for species that did not reach regional importance but were still of some ecological value. This included all species on the red or amber lists of the ‘Birds of Conservation Concern’ (Stanbury *et al.* 2021) that did not reach national or regional importance at the development site. National (GB) and International wintering waterfowl baseline populations have been taken from the most recently published population figures (Frost *et al.* 2021) from the national Wetland Birds Survey and other species from Woodward *et al.* (2020). In addition, listing on Annex 1 of the EU Birds Directive, Schedule 1 of the Wildlife and Countryside and UK Biodiversity Action Plan [BAP] priority species were all considered in the evaluation process.

TABLE 3. Definition of terms relating to the conservation value of the ornithological receptors at the site.

| Sensitivity | Definition |
|-------------|--|
| VERY HIGH | Cited interest of SPAs, SACs and SSSIs. Cited means mentioned in the citation text for the site as a species for which the site is designated (SPAs/SACs) or notified (SSSIs). |
| HIGH | Other species that contribute to the integrity of an SPA or SSSI. A local population of more than 1% of the national population of a species. EU Birds Directive Annex 1, EU Habitats Directive priority habitat/species and/or W&C Act Schedule 1 species. Ecologically sensitive species, e.g. large birds of prey or rare birds (<300 breeding pairs in the UK). |
| MEDIUM | Regionally important population of a species, either because of population size or distributional context. NERC Act Section 41 priority species (if not covered above), red-listed species of conservation concern. |
| LOW | Any other species of conservation interest, e.g. species listed on the Birds of Conservation Concern not covered above. Local BAP species (if not covered above). |



18. The conservation value of the wintering bird populations observed in the Six Oaks survey area during the wintering bird surveys has been summarised in Table 4 below. This included six high sensitivity species (marsh harrier, red kite, golden plover, barn owl, peregrine and merlin) that are EU Birds Directive Annex 1/Wildlife and Countryside Act Schedule 1 species, seven medium sensitivity species (UK BAP priority/red listed species of conservation concern and /or present in regionally important numbers; lapwing, black-headed gull, common gull, herring gull, yellow-legged gull, lesser black-backed gull and raven), and four low sensitivity species

TABLE 4. Conservation evaluation of the wintering bird populations in the Six Oaks survey area.

| Species | Peak count | >1% regional population | EU Birds Dir Ann 1 | W and C Act Sch 1 | Red [R]/ Amber [A] List | NERC priority sp | Value |
|--------------------------|------------|-------------------------|--------------------|-------------------|-------------------------|------------------|--------|
| Greylag Goose | 7 | | | | A | | Low |
| Mallard | 2 | | | | A | | Low |
| Sparrowhawk | 1 | | | | | | Nil |
| Marsh Harrier | 1 | ✓ | ✓ | ✓ | A | | High |
| Red Kite | 4 | ✓ | ✓ | ✓ | | | High |
| Buzzard | 7 | | | | | | Nil |
| Lapwing | 17 | | | | R | ✓ | Medium |
| Golden Plover | 117 | | ✓ | | | | High |
| Black-headed Gull | 430 | ✓ | | | A | | Medium |
| Common Gull | 198 | ✓ | | | A | | Medium |
| Herring Gull | 25 | | | | R | ✓ | Medium |
| Yellow-legged Gull | 1 | ✓ | | | A | | Medium |
| Lesser Black-backed Gull | 195 | ✓ | | | A | | Medium |
| Great Black-backed Gull | 1 | | | | A | | Low |
| Barn Owl | 1 | ✓ | | ✓ | | | High |
| Kestrel | 4 | | | | A | | Low |
| Peregrine | 1 | ✓ | ✓ | ✓ | | | High |
| Merlin | 1 | ✓ | ✓ | ✓ | R | | High |
| Raven | 1 | ✓ | | | | | Medium |

19. The key autumn/wintering birds recorded were as follows:

- **Marsh harrier** - there was a single record of an immature male seen over-flying during the field count survey on 24/3/20. A single bird would exceed 1% of the regional population, but with only a single sighting there was not any evidence that the survey area was ecologically important for this species.
- **Red kite** - red kites were regularly seen flying over the survey area, and the peak count of 4 birds would be regionally important. The flight lines observed during the VP surveys are shown in Figure 2.



- **Golden Plover** and **Lapwing** – peak numbers of both of these species were only locally important. The distribution and flight lines of golden plover are shown in Figure 3. More activity of both species was recorded in the central part of the survey area. No lapwing were seen on the ground during the field surveys. Their small number of flight lines are shown in Figure 3.
- **Black-headed Gull** and **Common Gull** - both of these species were seen regularly feeding within and over-flying the site. Numbers of both were classed as regionally important (>1% regional population). Activity of both species was widely distributed over the survey area. The distribution and flight lines of black-headed gull are shown in Figure 4 and of common gull in Figure 5.
- **Herring Gull** – this red-listed UK BAP priority species was seen over-flying and feeding within the survey area, with regular movements of birds over-flying the site, but only small numbers seen feeding within the survey area. Their flight lines and distribution during the field counts are shown in Figure 6. As for the other gull species, activity was widely distributed over the survey area.
- **Yellow-legged Gull** - there was a single record of one bird during the field count survey on 31/10/19. A single bird would exceed 1% of the regional population, but with only a single sighting there was not any evidence that the survey area was ecologically important for this species.
- **Lesser Black-backed Gull** - this species was seen in regionally important numbers, foraging within the survey area and regularly over-flying. Their flight lines and distribution during the field counts are shown in Figure 7. As for the other gull species, activity was widely distributed over the survey area.
- **Barn Owl** - single records from the field count and VP surveys for this species, but could be indicative of a resident pair in the area, which would be regionally important.
- **Peregrine** - 1-2 individuals were seen regularly during the surveys, which would be regionally important. Their flight lines are shown in Figure 8.
- **Merlin** - there was a single record of a female seen hunting over the site during the VP survey on 30/1/20. A single bird would exceed 1% of the regional population, but with only a single sighting there was not any evidence that the survey area was ecologically important for this species.
- **Raven** - there was a single record of one bird over-flying during the field count survey on 31/10/19. A single bird would exceed 1% of the regional population, but with only a single sighting there was not any evidence that the survey area was ecologically important for this species.



Six Oaks Renewable Energy Park: Wintering Bird Surveys 2019-20

**FIGURE 1
Bird Survey Area**

- KEY:**
- Six Oaks Site Boundary
 - VP Location
 - VP Viewshed (20m above ground to 2km)
 - Wintering bird survey area
 - Surveyed fields
 - Fields not visible



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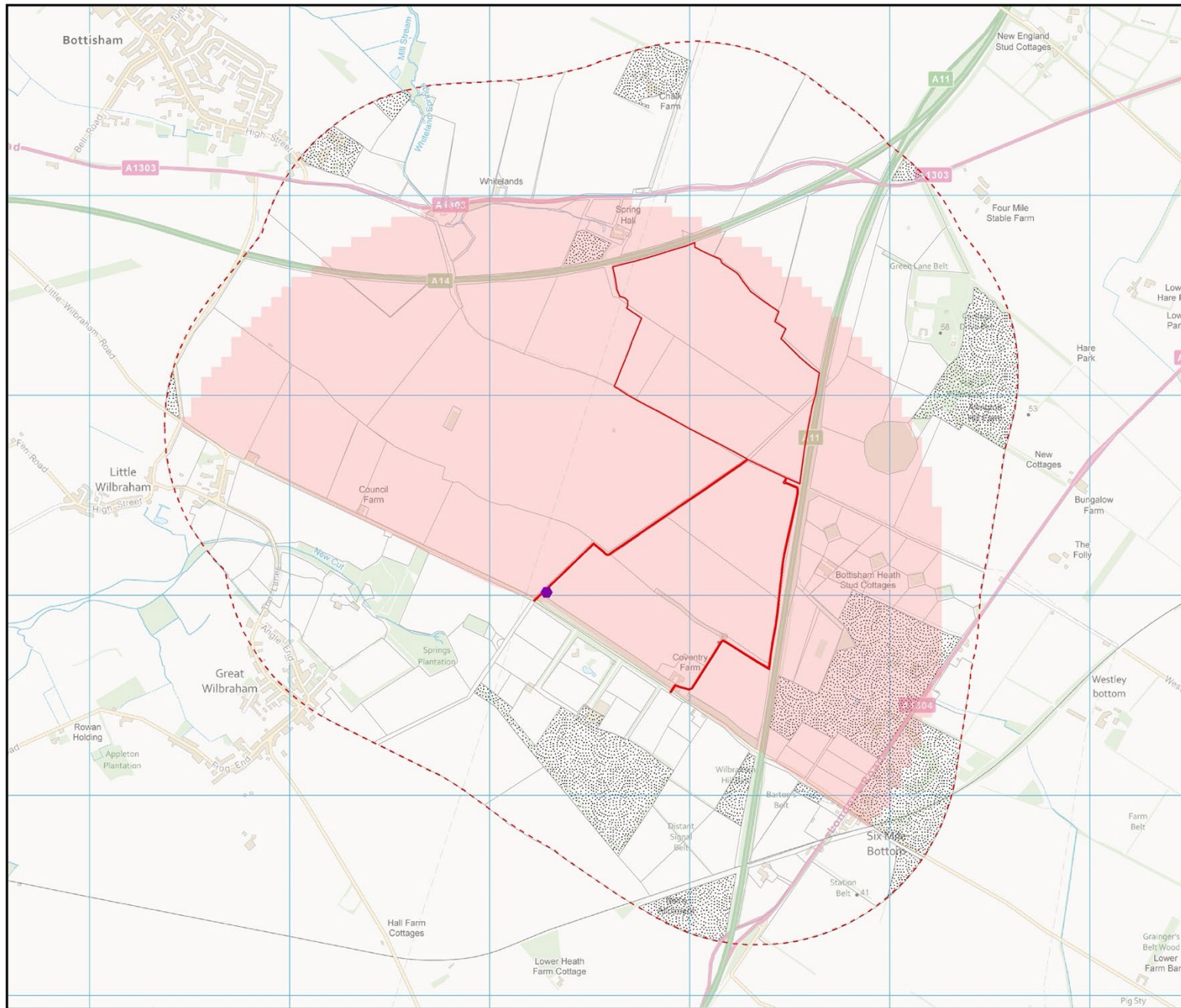
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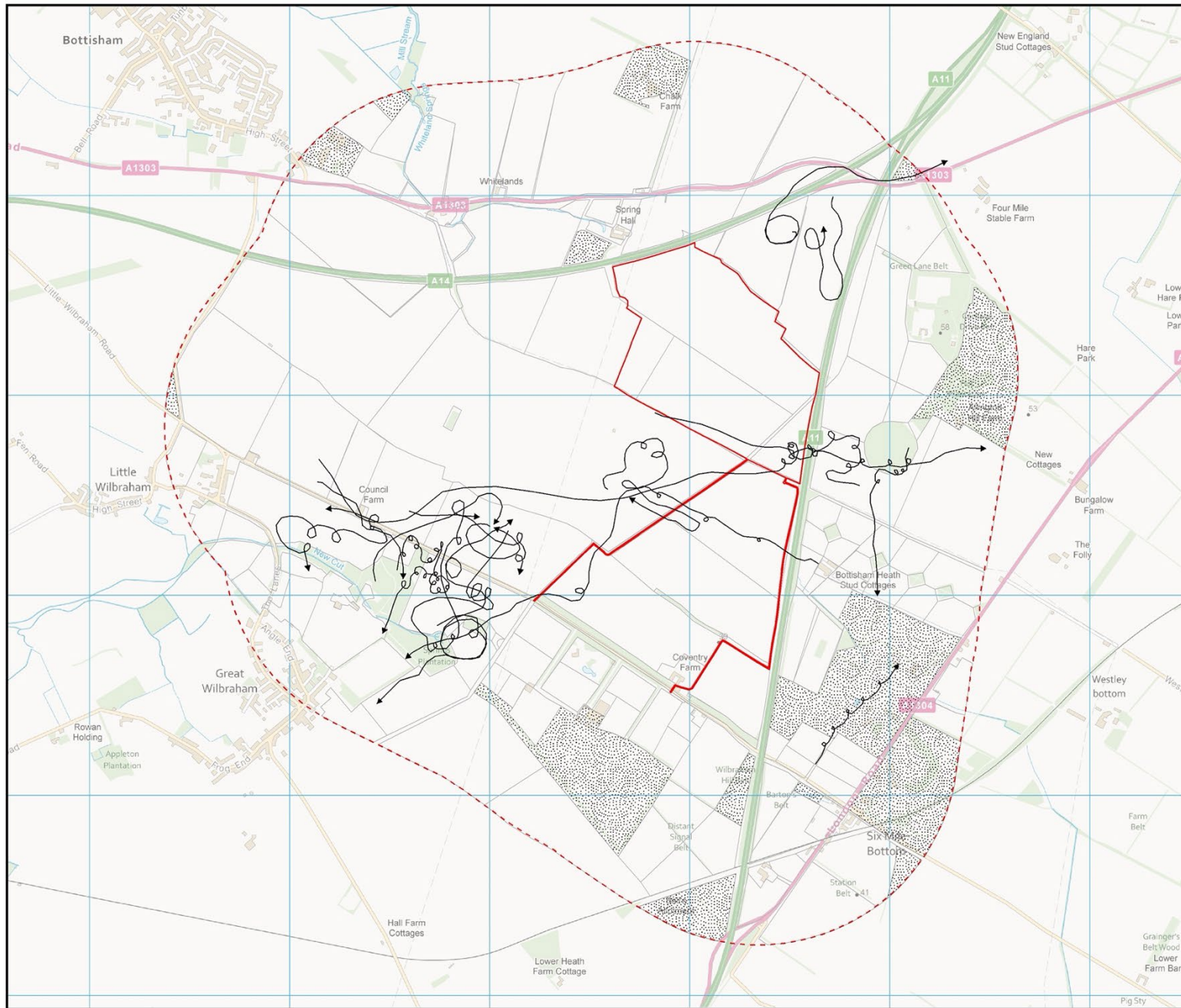
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Six Oaks Renewable Energy Park: Wintering Bird Surveys 2019-20

**FIGURE 2
Red Kite
Flight Lines**

- KEY:**
- Flight Lines
 - ▭ Six Oaks Site Boundary
 - - - Wintering bird survey area
 - ▭ Surveyed fields
 - ▨ Fields not visible



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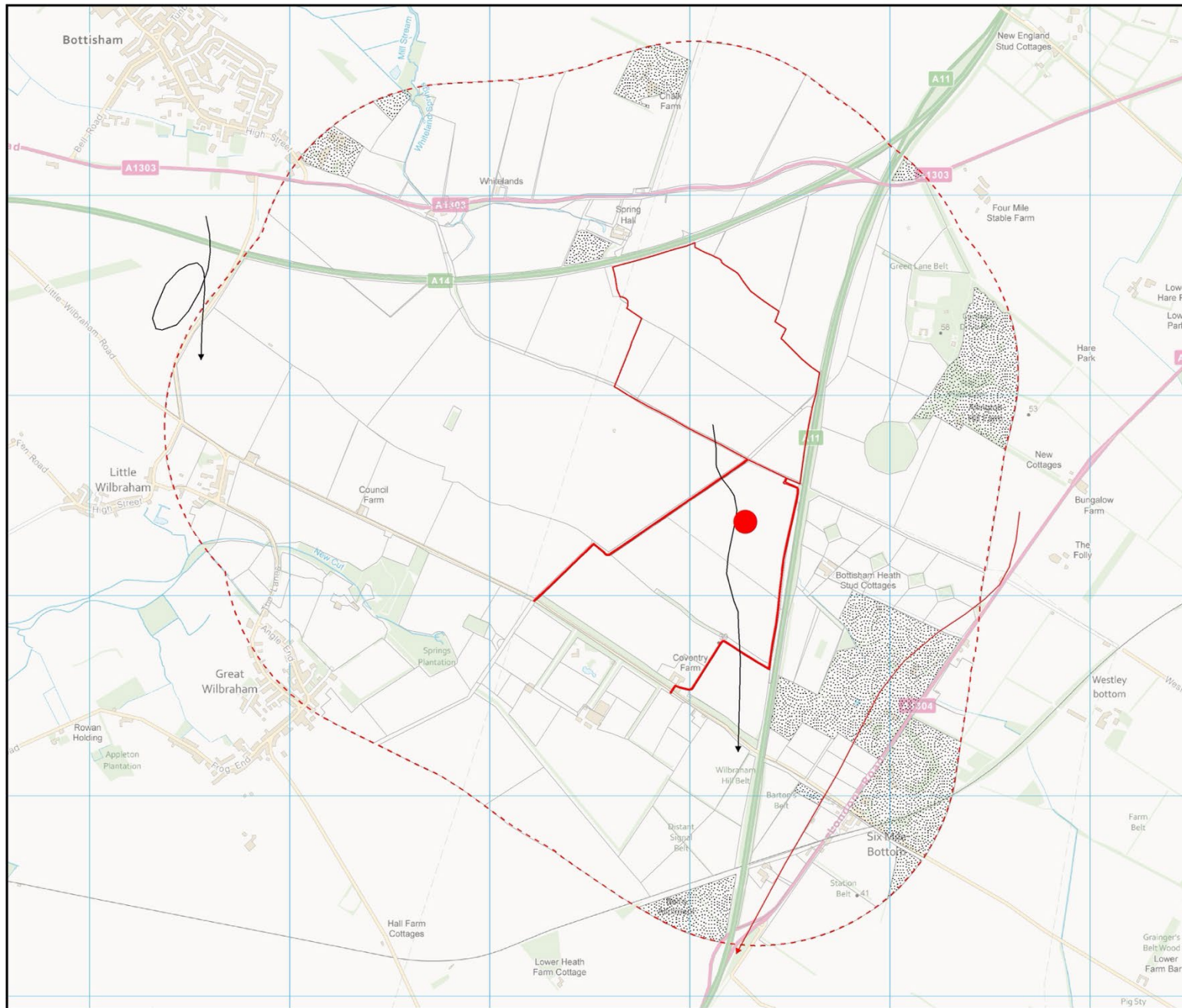
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**FIGURE 3
Golden Plover and Lapwing Distribution and Flight Lines**

- KEY:**
- Flight lines:**
 - Golden Plover
 - Lapwing
 - Six Oaks Site Boundary
 - Field peak counts (golden plover):**
 - 100
 - Wintering bird survey area
 - Surveyed fields
 - ▨ Fields not visible



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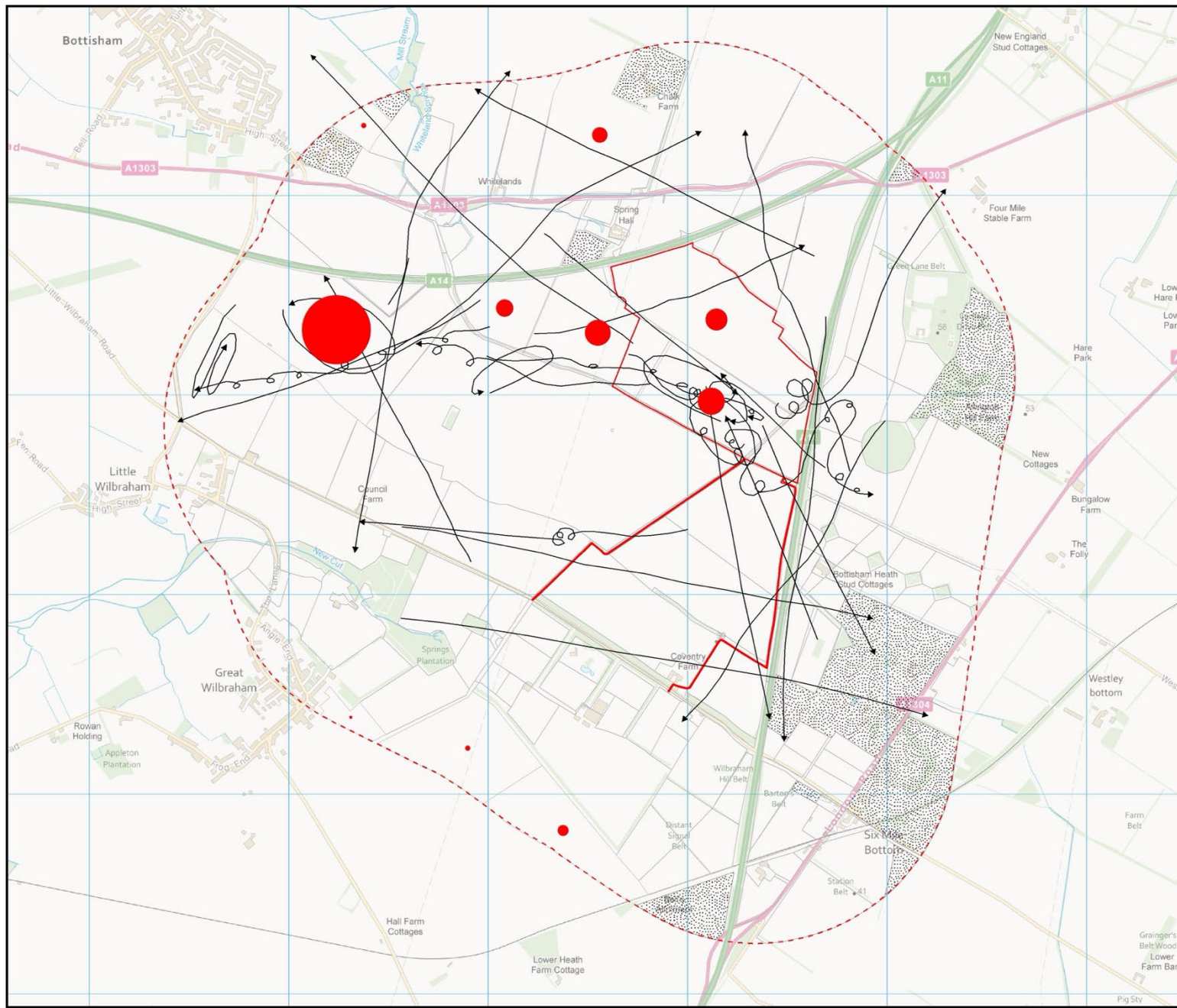
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FIGURE 4

Black-headed Gull Distribution and Flight Lines

KEY:

- Flight Lines
- ▭ Six Oaks Site Boundary

Field peak counts:

- 1
- 10
- 100

- - - Wintering bird survey area
- ▭ Surveyed fields
- ▨ Fields not visible

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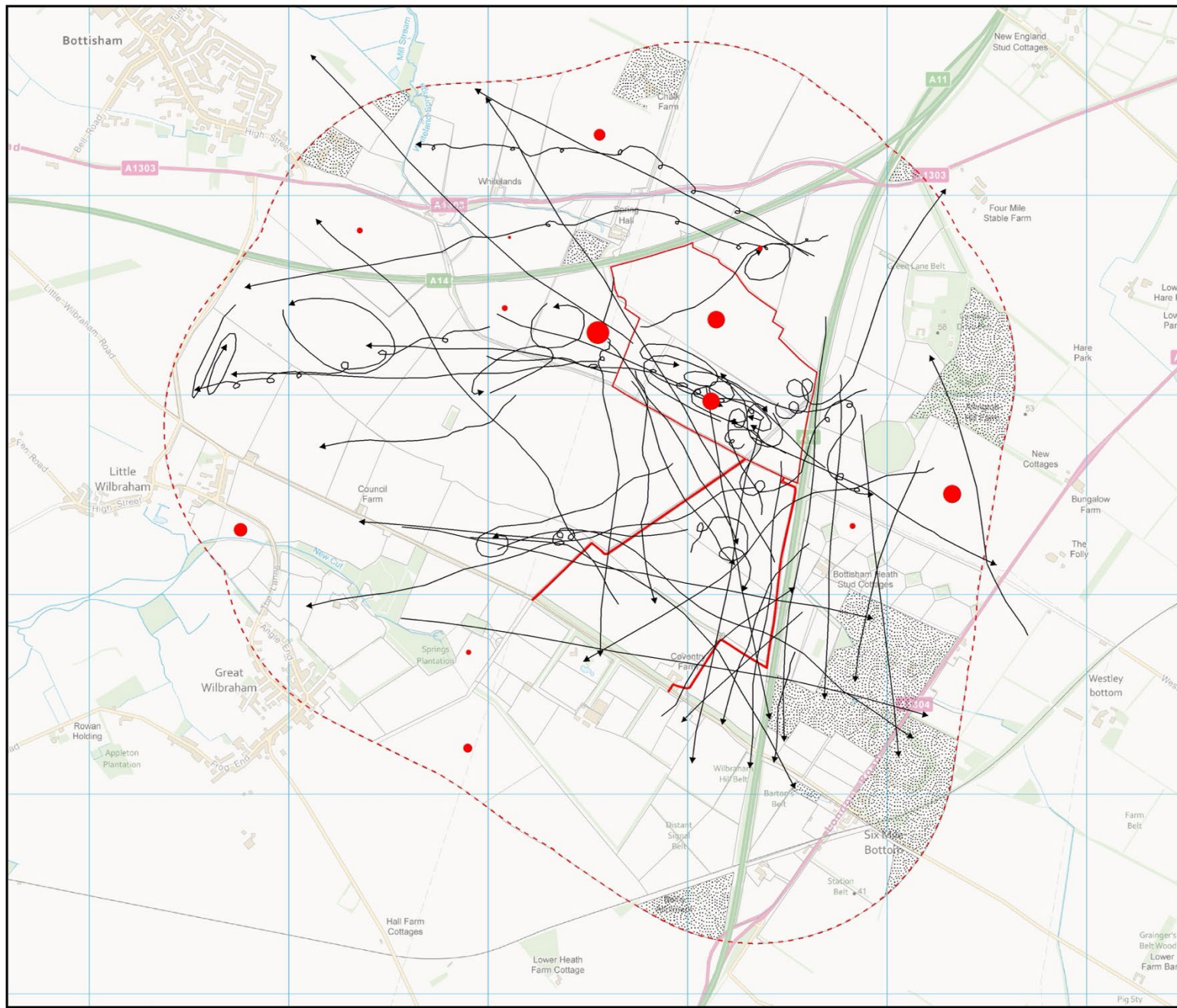
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**FIGURE 5
Common Gull Distribution and Flight Lines**

KEY:

- Flight Lines
- ▭ Six Oaks Site Boundary
- Field peak counts:**
- 1
- 5
- 10
- - - Wintering bird survey area
- ▭ Surveyed fields
- ▨ Fields not visible



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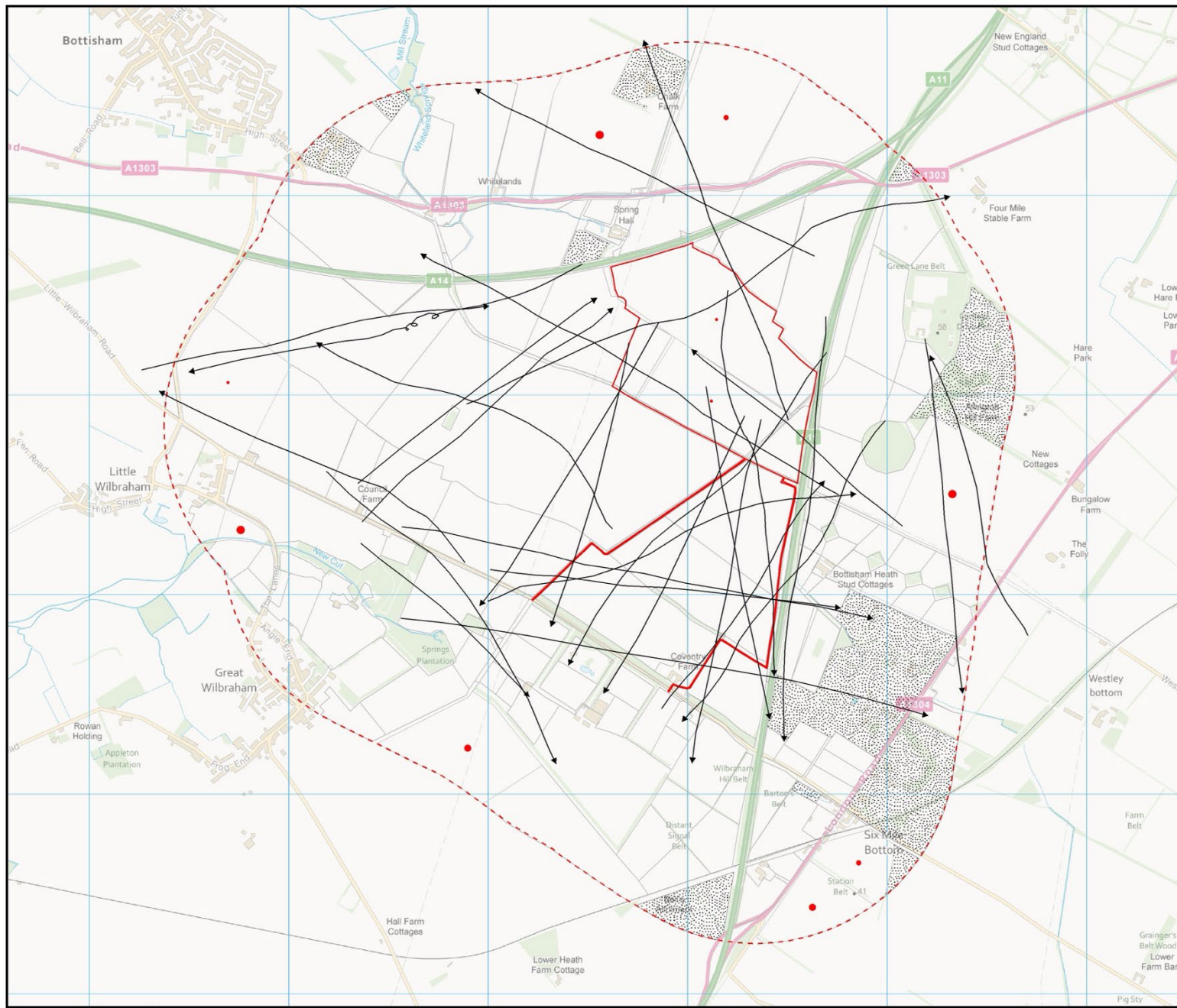
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Six Oaks Renewable Energy Park: Wintering Bird Surveys 2019-20

FIGURE 6

Herring Gull Distribution and Flight Lines

KEY:

- Flight Lines
- ▭ Six Oaks Site Boundary

Field peak counts:

- 1
- 5
- 10

- - - Wintering bird survey area
- ▭ Surveyed fields
- ▨ Fields not visible

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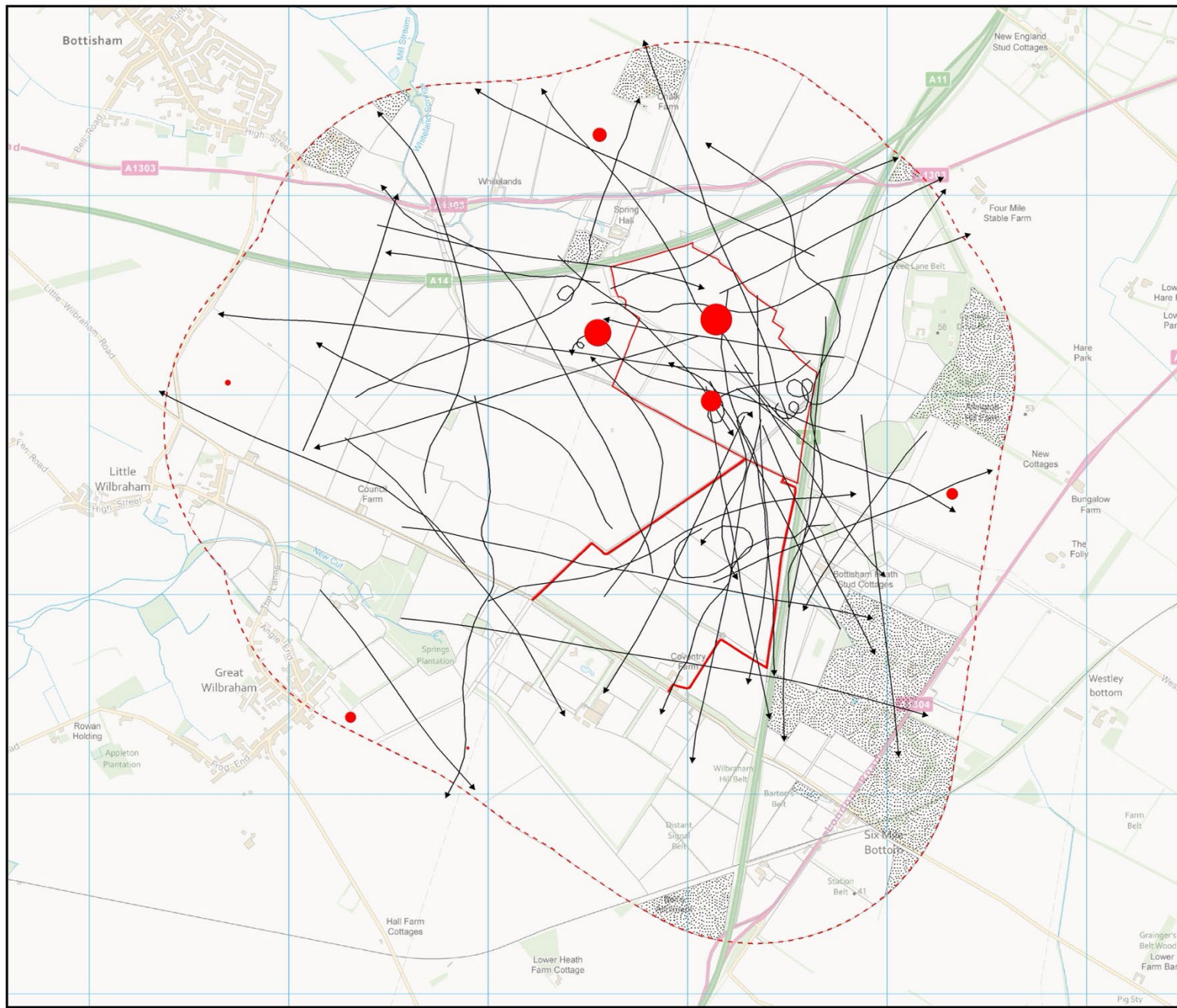
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Six Oaks Renewable Energy Park: Wintering Bird Surveys 2019-20

FIGURE 7

Lesser Black-backed Gull Distribution and Flight Lines

KEY:

- Flight Lines
- ▭ Six Oaks Site Boundary

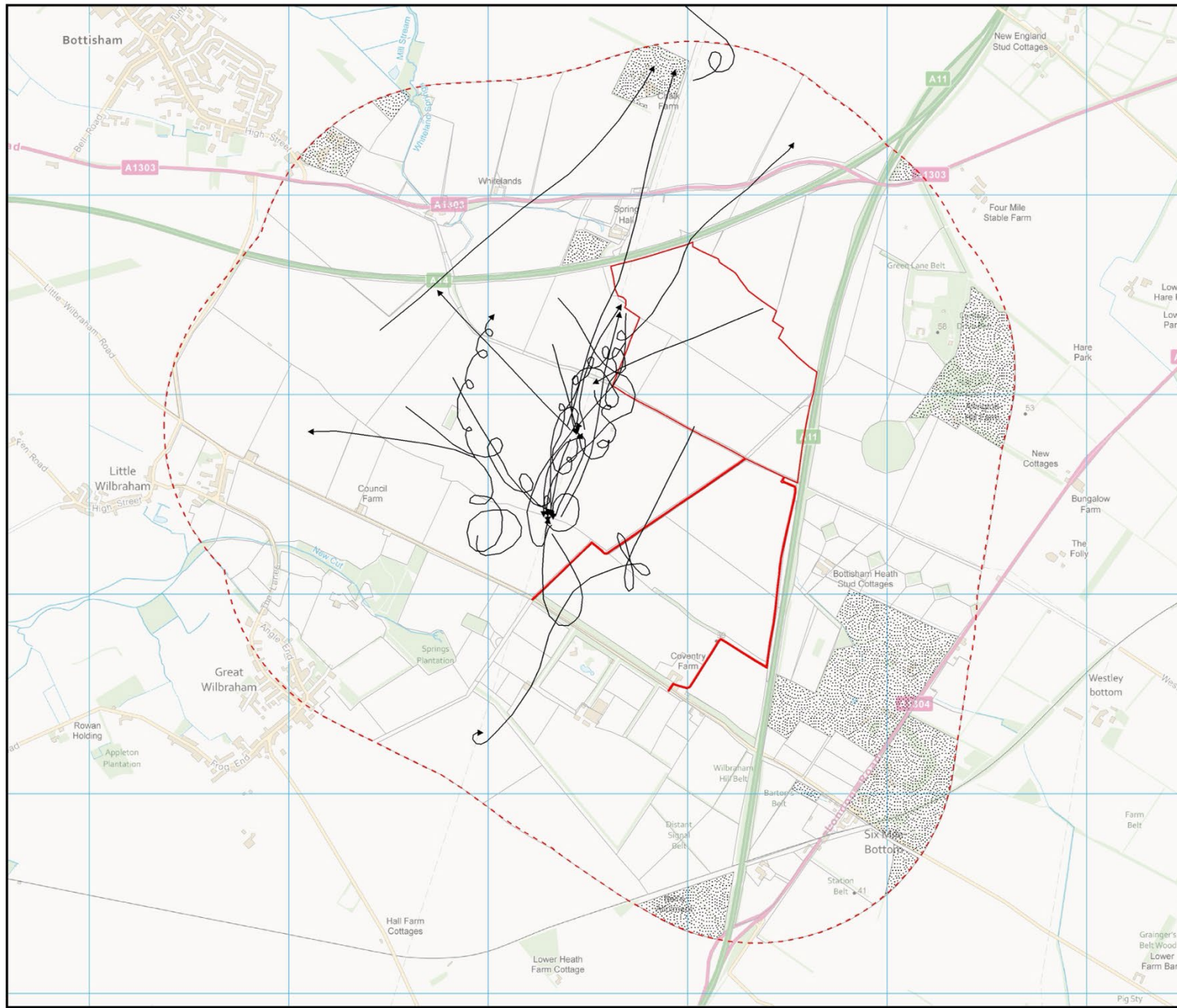
Field peak counts:

- 1
- 10
- 100

- - - Wintering bird survey area
- ▭ Surveyed fields
- ▨ Fields not visible

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FIGURE 8
Peregrine Flight Lines

KEY:

- Flight Lines
- ▭ Six Oaks Site Boundary
- - - Wintering bird survey area
- ▭ Surveyed fields
- ▨ Fields not visible



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CONCLUSIONS

20. Overall there was no evidence that the survey area (including the proposed development site) was particularly important for any wintering bird populations. The 2019-20 surveys have shown that the survey area did support some regionally important wintering bird populations, including red kite, black-headed gull, common gull, lesser black-backed gull, barn owl and peregrine. These species were, however, generally widely scattered in low numbers over the survey area. No parts of the survey area held any notable concentrations of birds and no important wintering bird habitats occurred within it.

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APPENDIX 1. SURVEY DATES AND WEATHER CONDITIONS

Field Count Survey Conditions

| Visit No | Date | Weather |
|----------|------------|--|
| 1 | 31/10/2019 | cloud 1-4/8, wind ESE 2-3, vis excellent, 8 to 10C |
| 2 | 13/11/2019 | cloud (high) 3-4/8, wind WSW 2, vis excellent, 5 to 5C |
| 3 | 25/11/2019 | cloud 8/8, wind S/SSE 2, vis excellent, 9 to 11C |
| 4 | 25/11/2019 | cloud 8/8, wind S/SSE 2, vis excellent, 9 to 11C |
| 5 | 25/11/2019 | cloud 8/8, wind SSE 3-4, rain, vis excellent, 9 to 11C |
| 6 | 09/12/2019 | cloud 1/8, wind NW 5 (gust 6), 7C, vis excellent |
| 7 | 24/12/2019 | cloud 3/8 <8/8, wind SW 2 to SSW 3-4, vis good, 7 to 9C |
| 8 | 06/01/2020 | cloud 7-2/8, wind SSW 3-4, vis excellent, 7C |
| 9 | 20/01/2020 | cloud 0/8, wind SW 1-2, 5C (ground frost), vis excellent |
| 10 | 30/01/2020 | cloud 8/8, vis very good, wind SS 2-3, 8C |
| 11 | 17/02/2020 | cloud 6-7/8 > 3/8, wind SW 4, light showers, 10C, vis excellent |
| 12 | 28/02/2020 | cloud 8/8, wind S/SSE 4-6, light to moderate rain, vis excellent, 5C |

Vantage Point Surveys

| Date | Start time | Finish time | Observation Time (hh:mm) | Weather |
|------------|------------|-------------|--------------------------|---|
| 31/10/2019 | 12:15 | 15:15 | 03:00 | wind ESE 3, cloud 5-6/8 (hazy), vis excellent though hazy, 10C |
| 13/11/2019 | 06:35 | 09:35 | 03:00 | cloud (high) 1-2/8, vis excellent, wind WSW 2, 4 to 5C |
| 25/11/2019 | 09:50 | 12:50 | 03:00 | cloud 8/8, wind SSE 2, 10C, drizzle/light rain 10:10 - 10:19, vis excellent; very good but murky during drizzle |
| 09/12/2019 | 07:10 | 10:10 | 03:00 | cloud 6-7/8, wind WNW - NW 4-5, 7C, vis excellent |
| 24/12/2019 | 10:05 | 11:35 | 01:30 | cloud 8/8 > variable 2-4/8, wind SSW 3-4, 9C, vis excellent |
| 27/12/2019 | 15:00 | 16:30 | 01:30 | cloud 8/8, wind S 1-2, 8C, vis good, slightly murky/hazy |
| 06/01/2020 | 11:35 | 14:35 | 03:00 | wind SSW 3-4, vis excellent, 7C, cloud 1-2/8 |
| 20/01/2020 | 14:00 | 17:00 | 03:00 | cloud 0/8, wind SW 1-2, 5C, vis excellent |

| Date | Start time | Finish time | Observation Time (hh:mm) | Weather |
|------------|------------|-------------|--------------------------|---|
| 30/01/2020 | 10:15 | 12:15 | 02:00 | cloud 8/8, wind SW 2, vis very good, slightly murky, 8C |
| 30/01/2020 | 13:30 | 14:30 | 01:00 | cloud 8/8, wind SSE 2-3, vis very good, 8C |
| 17/02/2020 | 12:55 | 13:55 | 01:00 | cloud 4-6/8, wind SSW 4-5, vis excellent, 10C |
| 17/02/2020 | 15:50 | 17:50 | 02:00 | cloud 2-4/8, wind SW 3-4, 10C > 8C, vis excellent |
| 28/02/2020 | 09:55 | 10:55 | 01:00 | cloud 8/8, > 10:22 - 10:30, wind SSE 4, intermittent light rain, vis excellent 4C |
| 28/02/2020 | 12:45 | 14:45 | 02:00 | cloud 8/8, wind S 4-5, gusting 6, 5C, vis very good, slightly hazy/murky, rain/light rain 12:45 - 13:52 |
| 11/03/2020 | 05:50 | 08:50 | 03:00 | cloud 1-2/8, vis excellent, 7C, wind SW 1-2 |
| 24/03/2020 | 15:00 | 18:00 | 03:00 | cloud 1/8, wind SSE 3-4, vis excellent, 12C |

APPENDIX 2. VANTAGE POINT SURVEY KEY SPECIES DATA

| Date | Time | Species | Count | Direction of flight | Flight height (m) | Activity | Time observed (sec) | Notes |
|------------|-------|---------|-------|---------------------|-------------------|----------|---------------------|--|
| 31/10/2019 | 12:24 | LB | 5 | E | 60 | commute | 360 | |
| 31/10/2019 | 12:29 | CM | 1 | S | 6 | commute | 110 | |
| 31/10/2019 | 12:30 | BH | 6 | SE | 23 | forage | 600 | |
| 31/10/2019 | 12:38 | LB | 1 | NE | 8 | commute | 100 | |
| 31/10/2019 | 12:44 | BH | 2 | W | 10 | forage | 105 | |
| 31/10/2019 | 12:49 | LB | 1 | WNW | 20 | commute | 80 | |
| 31/10/2019 | 12:54 | LB | 1 | NNW | 23 | commute | 80 | |
| 31/10/2019 | 12:57 | BZ | 1 | circle | 150 | soar | 500 | |
| 31/10/2019 | 13:02 | LB | 1 | NNW | 23 | commute | 75 | |
| 31/10/2019 | 13:04 | BZ | 1 | circle | 95 | soar | 300 | |
| 31/10/2019 | 13:05 | LB | 1 | ESE | 20 | commute | 70 | |
| 31/10/2019 | 13:09 | PE | 1 | NE | 70 | | 60 | took off from pylon; continued well off site |
| 31/10/2019 | 13:16 | LB | 1 | WNW | 35 | commute | 60 | |
| 31/10/2019 | 13:31 | LB | 2 | ENE | 15 | commute | 200 | |
| 31/10/2019 | 13:50 | LB | 1 | SE | 40 | commute | 75 | |
| 31/10/2019 | 13:57 | LB | 1 | S | 55 | commute | 110 | |
| 31/10/2019 | 13:58 | SH | 1 | N | 35 | hunt | 80 | |

SIX OAKS RENEWABLE ENERGY PARK: WINTER BIRD SURVEYS 2019-20



| Date | Time | Species | Count | Direction of flight | Flight height (m) | Activity | Time observed (sec) | Notes |
|------------|-------|---------|-------|---------------------|-------------------|----------|---------------------|--|
| 31/10/2019 | 14:00 | BZ | 2 | circle | 50 | soar | 210 | |
| 31/10/2019 | 14:05 | BZ | 1 | ENE | 4 | forage | 10 | landed on telegraph pole |
| 31/10/2019 | 14:08 | LB | 2 | SSE | 40 | commute | 85 | |
| 31/10/2019 | 14:08 | BH | 1 | SSE | 40 | commute | 85 | |
| 31/10/2019 | 14:12 | LB | 1 | ESE | 45 | commute | 100 | |
| 31/10/2019 | 14:19 | LB | 1 | W | 45 | commute | 60 | |
| 31/10/2019 | 14:23 | LB | 1 | SSE | 20 | commute | 105 | |
| 31/10/2019 | 14:32 | LB | 1 | SSE | 10 | commute | 145 | |
| 31/10/2019 | 14:36 | LB | 1 | circle | 8 | forage | 180 | |
| 31/10/2019 | 14:38 | KT | 1 | S | 35 | forage | 130 | |
| 31/10/2019 | 14:40 | HG | 1 | S | 35 | commute | 80 | |
| 31/10/2019 | 14:54 | BH | 17 | circle | 35 | commute | 180 | |
| 31/10/2019 | 14:54 | LB | 12 | circle | 35 | commute | 180 | |
| 31/10/2019 | 14:54 | CM | 4 | circle | 35 | commute | 180 | |
| 31/10/2019 | 14:55 | PE | 1 | SSE | 23 | commute | 75 | female, chased woodpigeons, then landed on pylon |
| 31/10/2019 | 14:55 | PE | 1 | SSE | 40 | commute | 65 | male, landed on pylon |
| 31/10/2019 | 14:56 | PE | 1 | SSW | 33 | commute | 15 | female, took off from and landed on pylon |
| 31/10/2019 | 15:00 | LB | 18 | ENE | 35 | commute | 100 | |
| 13/11/2019 | 07:05 | CM | 10 | S | 60 | commute | 1200 | along line 07:05 - 07:25 |
| 13/11/2019 | 07:05 | LB | 40 | S | 60 | commute | 1200 | along line 07:05 - 07:25 |
| 13/11/2019 | 07:05 | BH | 15 | S | 60 | commute | 1200 | along line 07:05 - 07:25 |
| 13/11/2019 | 07:05 | CM | 20 | S | 60 | commute | 1200 | along line 07:05 - 07:25 |
| 13/11/2019 | 07:05 | LB | 40 | S | 60 | commute | 1200 | along line 07:05 - 07:25 |
| 13/11/2019 | 07:05 | HG | 10 | S | 60 | commute | 1200 | along line 07:05 - 07:25 |
| 13/11/2019 | 07:08 | K | 1 | N | 5 | hunt | 140 | |
| 13/11/2019 | 07:12 | CM | 20 | SSE | 25 | commute | 1080 | along line 07:12 - 07:30 |
| 13/11/2019 | 07:12 | HG | 15 | SSE | 25 | commute | 1080 | along line 07:12 - 07:30 |
| 13/11/2019 | 07:12 | LB | 40 | SSE | 25 | commute | 1080 | along line 07:12 - 07:30 |
| 13/11/2019 | 07:15 | KT | 1 | W | 40 | hunt | 550 | |
| 13/11/2019 | 07:21 | HG | 4 | SSW | 40 | commute | 100 | |
| 13/11/2019 | 07:28 | HG | 2 | SSW | 25 | commute | 100 | |
| 13/11/2019 | 07:35 | CM | 2 | S | 50 | commute | 140 | |
| 13/11/2019 | 07:35 | BH | 4 | S | 50 | commute | 140 | |
| 13/11/2019 | 07:35 | LB | 2 | WSW | 65 | commute | 175 | |
| 13/11/2019 | 07:36 | LB | 1 | SSW | 30 | commute | 100 | |
| 13/11/2019 | 07:40 | KT | 1 | ESE | 25 | hunt | 60 | |
| 13/11/2019 | 07:47 | BH | 4 | SSE | 19 | commute | 100 | |
| 13/11/2019 | 07:47 | CM | 1 | SSE | 19 | commute | 100 | |
| 13/11/2019 | 07:47 | LB | 1 | SSE | 19 | commute | 100 | |
| 13/11/2019 | 07:47 | LB | 2 | S | 40 | commute | 120 | |



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| Date | Time | Species | Count | Direction of flight | Flight height (m) | Activity | Time observed (sec) | Notes |
|------------|-------|---------|-------|---------------------|-------------------|----------|---------------------|--|
| 13/11/2019 | 07:54 | HG | 2 | NE | 55 | commute | 85 | |
| 13/11/2019 | 07:55 | BH | 7 | S | 65 | commute | 100 | |
| 13/11/2019 | 08:01 | BH | 8 | NNW | 25 | commute | 100 | |
| 13/11/2019 | 08:09 | LB | 8 | SW | 30 | commute | 80 | |
| 13/11/2019 | 08:12 | BO | 1 | circle | 23 | hunt | 45 | above hedge/trees across A11. mobbed by two CM |
| 13/11/2019 | 08:14 | K | 1 | hover | 4 | hunt | 30 | |
| 13/11/2019 | 08:24 | HG | 1 | WNW | 58 | commute | 200 | |
| 13/11/2019 | 08:27 | BH | 4 | SW | 40 | commute | 85 | |
| 13/11/2019 | 08:36 | LB | 2 | W | 45 | commute | 140 | |
| 13/11/2019 | 08:38 | BH | 6 | SE | 45 | commute | 90 | |
| 13/11/2019 | 08:40 | PE | 1 | NW | 35 | hunt | 35 | |
| 13/11/2019 | 08:51 | HG | 1 | NW | 25 | commute | 80 | |
| 13/11/2019 | 09:06 | K | 1 | WNW | 8 | hunt | 50 | |
| 13/11/2019 | 09:25 | BZ | 1 | N | 23 | commute | 70 | |
| 25/11/2019 | 10:00 | BH | 3 | NNE | 16 | commute | 180 | |
| 25/11/2019 | 10:11 | L | 7 | SSE | 50 | commute | 155 | |
| 25/11/2019 | 10:13 | CM | 1 | SSW | 8 | commute | 95 | |
| 25/11/2019 | 10:27 | LB | 1 | NE | 25 | commute | 120 | |
| 25/11/2019 | 10:53 | BH | 1 | NE | 60 | commute | 140 | |
| 25/11/2019 | 11:12 | KT | 1 | circle NW | 23 | forage | 335 | landed in field |
| 25/11/2019 | 11:17 | BH | 3 | NNW | 25 | commute | 175 | |
| 25/11/2019 | 11:22 | HG | 17 | ESE | 50 | commute | 215 | |
| 25/11/2019 | 11:22 | LB | 20 | ESE | 50 | commute | 215 | |
| 25/11/2019 | 11:22 | BH | 2 | ESE | 50 | commute | 215 | |
| 25/11/2019 | 11:24 | KT | 1 | circle | 38 | forage | 415 | same as #6 |
| 25/11/2019 | 11:25 | HG | 7 | ESE | 45 | commute | 180 | |
| 25/11/2019 | 11:25 | CM | 1 | ESE | 45 | commute | 180 | |
| 25/11/2019 | 11:33 | LB | 4 | ESE | 55 | commute | 185 | |
| 25/11/2019 | 11:33 | HG | 18 | ESE | 55 | commute | 185 | |
| 25/11/2019 | 11:33 | CM | 2 | ESE | 55 | commute | 185 | |
| 25/11/2019 | 11:33 | BH | 6 | ESE | 55 | commute | 185 | |
| 25/11/2019 | 11:37 | CM | 1 | NNW | 7 | forage | 150 | |
| 25/11/2019 | 11:43 | CM | 35 | circle E | 8 | forage | 600 | |
| 25/11/2019 | 11:43 | BH | 5 | circle E | 8 | forage | 600 | |
| 25/11/2019 | 11:47 | HG | 5 | NE | 48 | commute | 195 | |
| 25/11/2019 | 11:52 | BZ | 1 | circle | 50 | | 50 | |
| 25/11/2019 | 11:53 | CM | 25 | circle | 10 | forage | 900 | |
| 25/11/2019 | 11:53 | BH | 3 | circle | 10 | forage | 900 | |
| 25/11/2019 | 12:04 | CM | 2 | SW | 8 | forage | 360 | |
| 25/11/2019 | 12:26 | CM | 3 | circle | 10 | forage | 300 | |
| 25/11/2019 | 12:35 | BZ | 1 | circle | 18 | circle | 105 | landed on hedge |

SIX OAKS RENEWABLE ENERGY PARK: WINTER BIRD SURVEYS 2019-20

| Date | Time | Species | Count | Direction of flight | Flight height (m) | Activity | Time observed (sec) | Notes |
|------------|-------|---------|-------|---------------------|-------------------|----------|---------------------|--------------------------|
| 25/11/2019 | 12:40 | CM | 5 | circle | 10 | forage | 600 | |
| 25/11/2019 | 12:42 | K | 1 | NW | 12 | hunt | 195 | female |
| 09/12/2019 | 07:25 | HG | 150 | SW | 40 | commute | | along line 07:25 - 07:42 |
| 09/12/2019 | 07:25 | BH | 20 | SW | 40 | commute | | along line 07:25 - 07:42 |
| 09/12/2019 | 07:38 | HG | 65 | SW | 40 | commute | 200 | |
| 09/12/2019 | 07:42 | CM | 55 | WSW | 13 | commute | 120 | |
| 09/12/2019 | 07:45 | HG | 45 | SW | 40 | commute | | 07:45 - 08:05 |
| 09/12/2019 | 07:55 | K | 1 | E | 13 | hunt | 100 | |
| 09/12/2019 | 07:56 | HG | 35 | NE | 25 | commute | | along line 07:56 - 08:10 |
| 09/12/2019 | 08:00 | GB | 2 | E | 35 | commute | 250 | |
| 09/12/2019 | 08:00 | HG | 25 | E | 35 | commute | 250 | |
| 09/12/2019 | 08:12 | HG | 22 | NE | 35 | commute | 240 | |
| 09/12/2019 | 08:20 | L | 1 | WNW | 10 | hunt | 45 | |
| 09/12/2019 | 08:22 | HG | 15 | NNW | 45 | commute | 150 | |
| 09/12/2019 | 08:22 | CM | 45 | NNW | 45 | commute | 150 | |
| 09/12/2019 | 08:28 | HG | 5 | NE | 35 | commute | 160 | |
| 09/12/2019 | 08:30 | HG | 12 | NE | 23 | commute | 200 | |
| 09/12/2019 | 08:33 | HG | 4 | ENE | 40 | commute | 200 | |
| 09/12/2019 | 08:40 | CM | 40 | NNW | 28 | commute | 400 | |
| 09/12/2019 | 08:40 | HG | 10 | NNW | 28 | commute | 400 | |
| 09/12/2019 | 08:44 | K | 1 | W | 10 | hunt | 140 | |
| 09/12/2019 | 08:57 | HG | 43 | ENE | 38 | commute | 380 | |
| 09/12/2019 | 09:20 | HG | 9 | ENE | 35 | commute | 200 | |
| 09/12/2019 | 09:47 | HG | 4 | NNW | 48 | commute | 250 | |
| 09/12/2019 | 09:47 | CM | 24 | NNW | 48 | commute | 250 | |
| 09/12/2019 | 09:58 | HG | 36 | NE | 40 | commute | 250 | |
| 24/12/2019 | 10:07 | LB | 1 | SE | 18 | commute | 175 | |
| 24/12/2019 | 10:27 | K | 1 | NW | 15 | hunt | 250 | female |
| 24/12/2019 | 10:48 | CM | 1 | circle WSW | 12 | commute | 285 | |
| 24/12/2019 | 10:56 | CM | 7 | circle NW | 11 | forage | 450 | |
| 24/12/2019 | 11:02 | PE | 1 | S | 90 | | 105 | male |
| 24/12/2019 | 11:07 | BZ | 1 | circle | 33 | circling | 60 | |
| 24/12/2019 | 11:16 | CM | 4 | WNW | 10 | forage | 1200 | |
| 24/12/2019 | 11:20 | LB | 1 | SW | 12 | commute | 115 | |
| 27/12/2019 | 15:02 | CM | 2 | NNW | 15 | commute | 205 | |
| 27/12/2019 | 15:18 | LB | 9 | NW | 40 | commute | 115 | |
| 27/12/2019 | 15:18 | HG | 4 | NW | 40 | commute | 115 | |
| 27/12/2019 | 15:18 | CM | 5 | NW | 40 | commute | 115 | |
| 27/12/2019 | 15:23 | LB | 1 | NW | 45 | commute | 100 | |
| 27/12/2019 | 15:23 | CM | 6 | NW | 45 | commute | 100 | |
| 27/12/2019 | 15:25 | LB | 2 | NNW | 53 | commute | 160 | |

SIX OAKS RENEWABLE ENERGY PARK: WINTER BIRD SURVEYS 2019-20

| Date | Time | Species | Count | Direction of flight | Flight height (m) | Activity | Time observed (sec) | Notes |
|------------|-------|---------|-------|---------------------|-------------------|----------|---------------------|---|
| 27/12/2019 | 15:25 | HG | 7 | NNW | 53 | commute | 160 | |
| 27/12/2019 | 15:28 | BH | 9 | NW | 45 | commute | 90 | |
| 27/12/2019 | 15:28 | CM | 7 | NW | 45 | commute | 90 | |
| 27/12/2019 | 15:28 | LB | 1 | NW | 45 | commute | 100 | |
| 27/12/2019 | 15:28 | HG | 3 | NW | 45 | commute | 100 | |
| 27/12/2019 | 15:35 | HG | 6 | NW | 40 | commute | 100 | |
| 27/12/2019 | 15:35 | LB | 2 | NW | 40 | commute | 100 | |
| 27/12/2019 | 15:56 | SH | 1 | ESE | 2 | hunt | 40 | male |
| 06/01/2020 | 11:45 | BZ | 1 | SE | 3 | hunt | 35 | |
| 06/01/2020 | 11:59 | CM | 4 | S | 50 | commute | 70 | |
| 06/01/2020 | 12:15 | CM | 1 | SSE | 5 | forage | 110 | |
| 06/01/2020 | 13:01 | CM | 44 | SW | 30 | commute | 180 | |
| 06/01/2020 | 13:11 | CM | 3 | NNE | 30 | commute | 50 | |
| 06/01/2020 | 13:18 | BZ | 1 | circle | 25 | forage | 230 | mobbed, landed |
| 06/01/2020 | 13:25 | KT | 1 | SE | 30 | hunt | 100 | |
| 06/01/2020 | 13:27 | BZ | 1 | SE | 28 | hunt | 65 | |
| 06/01/2020 | 14:02 | KT | 1 | NE | 65 | hunt | 110 | |
| 06/01/2020 | 14:14 | CM | 8 | S | 23 | commute | 200 | |
| 06/01/2020 | 14:20 | BZ | 1 | SW | 25 | hunt | 150 | landed on phone mast |
| 06/01/2020 | 14:31 | GB | 1 | SW | 30 | commute | 50 | |
| 20/01/2020 | 14:00 | BH | 75 | circle | 10 | forage | 1800 | maximum counts: birds in air throughout period |
| 20/01/2020 | 14:00 | CM | 20 | circle | 10 | forage | 1800 | maximum counts: birds in air throughout period |
| 20/01/2020 | 14:00 | BH | 5 | circle | 10 | forage | 1800 | maximum counts: birds in air throughout period |
| 20/01/2020 | 14:00 | CM | 20 | circle | 10 | forage | 1800 | |
| 20/01/2020 | 14:05 | CM | 2 | WNW | 10 | commute | 100 | |
| 20/01/2020 | 14:16 | GP | 12 | S | 60 | commute | 125 | |
| 20/01/2020 | 14:20 | BZ | 5 | NNW | 3 | commute | 15 | landed in tree |
| 20/01/2020 | 14:23 | CM | 5 | SSE | 8 | commute | 110 | |
| 20/01/2020 | 14:29 | BH | 3 | NE | 20 | commute | 135 | |
| 20/01/2020 | 14:30 | CM | 25 | circle | 10 | forage | 900 | maximum counts over these areas |
| 20/01/2020 | 14:30 | BH | 100 | circle | 10 | forage | 900 | maximum counts over these areas |
| 20/01/2020 | 14:30 | CM | 30 | circle | 10 | forage | 1800 | maximum counts over these areas |
| 20/01/2020 | 14:30 | BH | 3 | circle | 10 | forage | 1800 | maximum counts over these areas |
| 20/01/2020 | 14:35 | CM | 2 | ESE | 8 | commute | 95 | |
| 20/01/2020 | 14:48 | BH | 220 | circle | 10 | forage | 720 | maximum counts; birds in air continuously until 15:20 following tractor |

SIX OAKS RENEWABLE ENERGY PARK: WINTER BIRD SURVEYS 2019-20



| Date | Time | Species | Count | Direction of flight | Flight height (m) | Activity | Time observed (sec) | Notes |
|------------|-------|---------|-------|---------------------|-------------------|----------|---------------------|---|
| 20/01/2020 | 14:48 | CM | 50 | circle | 10 | forage | 720 | maximum counts; birds in air continuously until 15:20 following tractor |
| 20/01/2020 | 14:50 | CM | 5 | circle | 18 | | 100 | |
| 20/01/2020 | 14:50 | CM | 2 | WSW | 30 | commute | 160 | |
| 20/01/2020 | 14:56 | RN | 2 | NE | 55 | commute | 200 | |
| 20/01/2020 | 14:59 | BZ | 1 | circle NNE | 103 | soar | 215 | one of birds from #5 |
| 20/01/2020 | 15:00 | BH | 3 | circle | 10 | forage | 1800 | maximum counts: birds in air throughout period |
| 20/01/2020 | 15:00 | CM | | circle | 10 | forage | 1800 | maximum counts: birds in air throughout period |
| 20/01/2020 | 15:00 | BH | 210 | circle | 10 | forage | 1380 | maximum count, birds in air following tractor continuously until 15:23 |
| 20/01/2020 | 15:00 | CM | 80 | circle | 10 | forage | 1380 | maximum count, birds in air following tractor continuously until 15:23 |
| 20/01/2020 | 15:06 | CM | 1 | SE | 23 | commute | 115 | |
| 20/01/2020 | 15:12 | BZ | 1 | NW | 8 | commute | 85 | remaining bird from #5; took off & landed on tree |
| 20/01/2020 | 15:16 | CM | 8 | NE | 5 | forage | 190 | |
| 20/01/2020 | 15:22 | CM | 1 | WSW | 9 | commute | 90 | |
| 20/01/2020 | 15:23 | K | 1 | NW | 7 | commute | 15 | female, landed on wires |
| 20/01/2020 | 15:30 | CM | 18 | circle | 10 | forage | 1200 | maximum count foraging over this area until 15:50 |
| 20/01/2020 | 15:32 | BH | 85 | circle | 10 | forage | 570 | maximum counts; birds following tractor until 15:42 |
| 20/01/2020 | 15:32 | CM | 15 | circle | 10 | forage | 570 | maximum counts; birds following tractor until 15:42 |
| 20/01/2020 | 15:32 | CM | 6 | circle | 8 | | 45 | |
| 20/01/2020 | 15:35 | K | 1 | NW | 8 | commute | 25 | female, same as #17: dropped out of view |
| 20/01/2020 | 15:41 | CM | 2 | ESE | 8 | commute | 40 | |
| 20/01/2020 | 15:44 | BZ | 1 | NE | 11 | commute | 35 | landed in tree |
| 20/01/2020 | 15:55 | CM | 29 | NW | 40 | commute | 210 | totals along this line 15:55 - 15:39 |
| 20/01/2020 | 15:59 | LB | 6 | NNW | 80 | commute | 195 | |
| 20/01/2020 | 16:01 | CM | 40 | NW | 35 | commute | 210 | |
| 20/01/2020 | 16:01 | BH | 17 | NW | 35 | commute | 210 | |
| 20/01/2020 | 16:03 | LB | 3 | NNW | 85 | commute | 210 | |
| 20/01/2020 | 16:03 | HG | 1 | NNW | 85 | commute | 210 | |
| 20/01/2020 | 16:17 | L | 55 | circle | 55 | commute | 225 | circling for c210 seconds before dropped to fields |
| 20/01/2020 | 16:37 | PE | 1 | SSW | 31 | mob | 125 | ad male, landed on pylon after circling tree containing BZ |
| 30/01/2020 | 10:17 | BZ | 1 | WSW | 15 | commute | 50 | landed in hedge |
| 30/01/2020 | 10:20 | BZ | 1 | S | 15 | mob | 45 | came up to see off other BZ line #1 and landed in hedge |



SIX OAKS RENEWABLE ENERGY PARK: WINTER BIRD SURVEYS 2019-20

| Date | Time | Species | Count | Direction of flight | Flight height (m) | Activity | Time observed (sec) | Notes |
|------------|-------|---------|-------|---------------------|-------------------|----------|---------------------|--|
| 30/01/2020 | 10:20 | BZ | 1 | circle | 13 | mobbed | 20 | same bird as #1, seen off by BZ line #2 |
| 30/01/2020 | 10:22 | BZ | 1 | SE | 10 | forage | 80 | same as #2; lost from view behind trees |
| 30/01/2020 | 10:25 | BH | 4 | SW | 9 | commute | 115 | |
| 30/01/2020 | 10:36 | CM | 3 | NW | 50 | commute | 65 | dropped sharply out of view |
| 30/01/2020 | 10:36 | BH | 2 | NW | 50 | commute | 65 | dropped sharply out of view |
| 30/01/2020 | 10:40 | CM | 2 | S | 40 | commute | 50 | |
| 30/01/2020 | 10:47 | KT | 1 | circle | 45 | forage | 240 | dropped behind trees |
| 30/01/2020 | 10:47 | KT | 1 | circle | 32 | forage | 285 | landed on ground |
| 30/01/2020 | 10:49 | LB | 1 | SSE | 80 | commute | 110 | lost from view behind trees |
| 30/01/2020 | 10:49 | K | 1 | S | 7 | hunt | 75 | |
| 30/01/2020 | 10:53 | BH | 11 | circle WSW | 11 | forage | 180 | |
| 30/01/2020 | 10:53 | CM | 5 | circle WSW | 11 | forage | 180 | |
| 30/01/2020 | 10:54 | KT | 1 | SW | 15 | hunt | 425 | returned to field with prey/carrion |
| 30/01/2020 | 10:56 | KT | 1 | circle N | 23 | hunt | 400 | |
| 30/01/2020 | 10:58 | BH | 2 | circle | 15 | forage | 2150 | maxima foraging over this area until 11:34 |
| 30/01/2020 | 10:58 | CM | 8 | circle | 15 | forage | 2150 | maxima foraging over this area until 11:34 |
| 30/01/2020 | 11:08 | KT | 1 | N | 28 | | 135 | landed in field |
| 30/01/2020 | 11:19 | K | 1 | S | 15 | hunt | 375 | |
| 30/01/2020 | 11:24 | CM | 1 | SSW | 43 | commute | 115 | |
| 30/01/2020 | 11:33 | PE | 1 | NE | 35 | commute | 90 | juv, prob female |
| 30/01/2020 | 11:36 | KT | 2 | circle | 20 | | 85 | took off and landed on ground |
| 30/01/2020 | 11:43 | ML | 1 | NW | 1 | hunt | 15 | female, had been perched on hedge since v11:00, took off and lost from view low over field |
| 30/01/2020 | 11:52 | CM | 7 | SW | 18 | commute | 255 | |
| 30/01/2020 | 11:58 | HG | 2 | SE | 60 | commute | 180 | |
| 30/01/2020 | 12:09 | CM | 7 | E | 80 | commute | 220 | lost from view behind trees |
| 30/01/2020 | 13:37 | LB | 6 | SSW | 60 | commute | 140 | |
| 30/01/2020 | 13:37 | HG | 8 | SSW | 60 | commute | 140 | |
| 30/01/2020 | 13:37 | CM | 1 | SSW | 60 | commute | 140 | |
| 30/01/2020 | 13:49 | CM | 12 | W | 50 | commute | 175 | |
| 30/01/2020 | 13:49 | BH | 7 | W | 50 | commute | 175 | |
| 30/01/2020 | 13:58 | KT | 1 | ESE | 45 | hunt | 180 | |
| 30/01/2020 | 14:05 | CM | 8 | WSW | 40 | commute | 200 | |
| 30/01/2020 | 14:10 | CM | 22 | S | 48 | commute | 210 | |
| 30/01/2020 | 14:18 | HG | 2 | WSW | 80 | commute | 165 | |

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|------------|-------|---------|-------|---------------------|-------------------|-------------|---------------------|--|
| 30/01/2020 | 14:23 | CM | 20 | S | 100 | commute | 140 | |
| 17/02/2020 | 13:04 | CM | 1 | ENE | 45 | commute | 135 | |
| 17/02/2020 | 13:13 | BZ | 1 | circle | 30 | circle | 65 | dropped out of view |
| 17/02/2020 | 13:34 | BZ | 1 | SW | 45 | commute | 110 | |
| 17/02/2020 | 15:53 | BZ | 2 | circle | 80 | soar | 180 | |
| 17/02/2020 | 16:00 | CM | 7 | NNW | 60 | commute | 240 | |
| 17/02/2020 | 16:09 | LB | 3 | WSW | 33 | commute | 170 | |
| 17/02/2020 | 16:13 | LB | 1 | NNE | 43 | commute | 105 | |
| 17/02/2020 | 16:19 | BZ | 1 | circle | 40 | circle | 80 | |
| 17/02/2020 | 16:24 | BZ | 4 | circle | 50 | soar | 450 | up to 4 birds in the air until 16:32 |
| 17/02/2020 | 16:29 | HG | 1 | ESE | 75 | commute | 135 | |
| 17/02/2020 | 16:31 | BZ | 1 | WSW | 28 | | 190 | |
| 17/02/2020 | 16:35 | PE | 1 | SW | 55 | commute | 45 | male, landed on plain |
| 17/02/2020 | 16:37 | LB | 1 | NNW | 43 | commute | 215 | |
| 17/02/2020 | 16:45 | LB | 2 | NNE | 28 | commute | 165 | |
| 17/02/2020 | 16:52 | LB | 1 | N | 28 | commute | 170 | |
| 17/02/2020 | 17:04 | BZ | 1 | circle | 48 | circle | 60 | |
| 17/02/2020 | 17:06 | K | 1 | WSW | 25 | hunt | 315 | |
| 17/02/2020 | 17:36 | PE | 1 | circle SSE | 60 | | 65 | took off from & landed on pylon |
| 17/02/2020 | 17:37 | K | 1 | SSW | 18 | hunt | 110 | |
| 28/02/2020 | 10:01 | LB | 2 | SSE | 55 | commute | 235 | |
| 28/02/2020 | 10:17 | CM | 3 | circle | 8 | forage | 420 | |
| 28/02/2020 | 10:26 | K | 1 | SE | 15 | commute | 35 | dropped out of view |
| 28/02/2020 | 10:33 | HG | 1 | S | 33 | commute | 225 | |
| 28/02/2020 | 10:33 | LB | 3 | S | 33 | commute | 225 | |
| 28/02/2020 | 10:37 | BH | 1 | NNW | 60 | commute | 115 | |
| 28/02/2020 | 10:51 | HG | 1 | SE | 45 | commute | 115 | |
| 28/02/2020 | 13:57 | LB | 2 | NNW | 50 | commute | 155 | |
| 11/03/2020 | 06:12 | HG | 2 | S | 50 | roost | 110 | |
| 11/03/2020 | 06:13 | PE | 1 | NNE | 40 | commute | 10 | male, pylon to pylon, mated with female |
| 11/03/2020 | 06:14 | PE | 1 | SSW | 40 | commute | 10 | male, pylon to pylon |
| 11/03/2020 | 06:14 | PE | 1 | NNE | 45 | commute | 15 | female, pylon to pylon |
| 11/03/2020 | 06:15 | PE | 1 | NNE | 30 | commute | 25 | female, pylon to pylon |
| 11/03/2020 | 06:18 | PE | 2 | SSW | 35 | commute | 25 | pair, pylon to pylon had been sat in hedge since start |
| 11/03/2020 | 06:25 | BZ | 2 | S | 5 | commute | 40 | |
| 11/03/2020 | 06:31 | HG | 1 | S | 50 | commute | 100 | same line |
| 11/03/2020 | 06:40 | PE | 2 | NNE | 35 | commute | 60 | pair, pylon to pylon |
| 11/03/2020 | 06:54 | BZ | 1 | WNW | 13 | commute | 20 | landed in tree |
| 11/03/2020 | 07:17 | PE | 1 | SSE | 38 | commute | 10 | landed on pylon |
| 11/03/2020 | 07:34 | BZ | 1 | circle | 40 | hunt/forage | 300 | |



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|------------|-------|---------|-------|---------------------|-------------------|------------------|---------------------|---|
| 11/03/2020 | 07:53 | MA | 1 | SSW | 25 | commute | 40 | female |
| 11/03/2020 | 08:07 | GJ | 5 | S | 25 | commute | 85 | |
| 11/03/2020 | 08:36 | BZ | 1 | circle | 30 | hunt/forage/soar | 300 | |
| 11/03/2020 | 08:44 | BZ | 2 | circle | 30 | hunt/forage/soar | 220 | |
| 11/03/2020 | 08:48 | KT | 1 | E | 5 | hunt/forage | 120 | landed |
| 24/03/2020 | 15:00 | BZ | 1 | circle | 212 | soar | 150 | |
| 24/03/2020 | 15:00 | BZ | 1 | circle NNE | 70 | soar | 180 | |
| 24/03/2020 | 15:03 | PE | 1 | circle | 130 | pursuing | 180 | adult female, pursuing #4 |
| 24/03/2020 | 15:03 | PE | 1 | circle | 90 | chased | 110 | juv female, being chased by #3 |
| 24/03/2020 | 15:11 | BZ | 1 | W | 28 | commute | 110 | dropped out of view |
| 24/03/2020 | 15:23 | BZ | 2 | circle | 60 | soar | 210 | |
| 24/03/2020 | 15:28 | PE | 1 | SSE | 20 | carry prey | 55 | adult male, landed on pylon |
| 24/03/2020 | 15:36 | BZ | 1 | circle | 75 | soar | 115 | |
| 24/03/2020 | 15:41 | PE | 1 | circle | 18 | | 30 | same as #7; took off and landed |
| 24/03/2020 | 15:43 | KT | 1 | S | 18 | forage | 130 | landed |
| 24/03/2020 | 15:50 | BZ | 1 | circle NE | 110 | soar | 165 | |
| 24/03/2020 | 15:55 | PE | 1 | SE | 50 | commute | 50 | same as #3; landed on pylon & male offered food |
| 24/03/2020 | 15:59 | BZ | 1 | circle | 50 | soar | 240 | |
| 24/03/2020 | 16:01 | PE | 1 | S | 35 | | 70 | took off from & landed on pylon; same as #7 |
| 24/03/2020 | 16:06 | BZ | 1 | circle | 138 | soar | 40 | |
| 24/03/2020 | 16:14 | BZ | 1 | circle | 103 | soar | 90 | |
| 24/03/2020 | 16:23 | KT | 1 | circle | 33 | forage | 165 | same as #10; lost to view behind trees |
| 24/03/2020 | 16:34 | LB | 1 | NE | 45 | commute | 205 | |
| 24/03/2020 | 17:06 | PE | 1 | SSE | 35 | | 45 | took off from & landed on pylon; same as #3 |
| 24/03/2020 | 17:31 | K | 1 | SSW | 15 | hunt | 60 | male |
| 24/03/2020 | 17:37 | BZ | 1 | circle | 35 | | 105 | landed in tree |
| 24/03/2020 | 17:54 | GJ | 7 | NW | 70 | commute | 245 | |



