

Thameside Ecological Survey Report 2022



Essex
Wildlife Trust

Contents

Introduction	3
Birds	4
Grassland and Meadows.....	6
Butterflies.....	8
Reptiles	10
Moths	11
Bats	12
Site Maps	13

Introduction

This document has been written to give a brief overview of the ecological surveys that were carried out at Thameside Nature Discovery Park in 2022. As part of the management plan for the site, it is required that breeding bird, rapid grassland and butterfly surveys be carried out annually to provide a snapshot of the health of the reserve as these species are good indicators of habitat condition.

In addition to these mandatory surveys other groups have also been studied to provide a broader picture of what can be found on the reserve. This includes surveys for reptiles, bats, and moths.

The surveys followed industry best practice methods which will be described in more detail in their respective sections.

Note that some surveys do not require certain species to be recorded and so they are not included in the raw data. That does not mean that the species is absent from the site but that it is not relevant to the survey.



Plate 1. Coronation Meadow rowed up for baling

Birds

Breeding bird surveys were conducted on site during the main breeding season. Two visits were made, the first or early visit in April and the second late visit in June. A transect was walked from the NDC along Mucking Creek, down through the Summer Pasture out towards Golden Gate Lake and East Tilbury. It then ran from the EDL power station and cut across the top of the main landfill site and back up to the NDC. The surveys were carried out from 6:30am – 9:30am. During the survey, all birds (excluding juveniles) that were seen or heard and their distance from the transect were recorded.

An average total of **534** individual birds and **51** species were detected across the reserve.

- | | |
|------------------------------|------------------------|
| 1. Blackbird | 27. Linnet |
| 2. Blackcap | 28. Little egret |
| 3. Black-headed gull | 29. Little grebe |
| 4. Blue tit | 30. Long-tailed tit |
| 5. Buzzard | 31. Mallard |
| 6. Canada goose | 32. Mediterranean gull |
| 7. Carrion crow | 33. Mistle thrush |
| 8. Cetti's warbler | 34. Moorhen |
| 9. Chaffinch | 35. Nightingale |
| 10. Coal tit | 36. Pied wagtail |
| 11. Coot | 37. Pochard |
| 12. Corn bunting | 38. Reed warbler |
| 13. Cuckoo | 39. Robin |
| 14. Dunnock | 40. Rook |
| 15. Gadwall | 41. Sand martin |
| 16. Goldfinch | 42. Skylark |
| 17. Great crested grebe | 43. Snipe |
| 18. Great spotted woodpecker | 44. Song thrush |
| 19. Great tit | 45. Starling |
| 20. Green woodpecker | 46. Stonechat |
| 21. Greenfinch | 47. Swallow |
| 22. Greylag goose | 48. Swift |
| 23. House sparrow | 49. Tufted duck |
| 24. Jackdaw | 50. Whitethroat |
| 25. Jay | 51. Wren |
| 26. Kestrel | |

Of these species, there were several key species that are of particular importance to Thameside. The **skylark, corn bunting and nightingale**.

Skylarks have always been a key species at Thameside, and they often use the Coronation Meadow and Summer Pasture to breed. There is a real concern surrounding the disturbance of these birds especially as the site becomes more heavily used by the public. This year, we amended our survey transect to include lease areas 5 and 6 which are not currently managed by the EWT. The rationale behind this was to gather baseline population numbers so that we may monitor trends in the future as that part of the site is opened to the public.

Overall, the survey revealed **32 pairs of skylarks**, **6 pairs of corn bunting** and **5 pairs of Nightingale** (a species that has never appeared in any substantial number on site before).

In addition to the birds that were recorded during the survey, several anecdotal sightings have been made throughout the breeding season. Several raptor species have been recorded including **long-eared owl**, **short-eared owl**, **barn owl**, **peregrine falcon**, **marsh harrier**, **hobby** and **red kite**. It remains unclear as to whether these species are breeding on site however, they are using the site for hunting. The peregrines are regular visitors to the crane gantry on the jetty and it is suspected that they bred there this year.

The Autumn migration brought regular sightings of species such as **whinchat**, **wheatear** and **cattle egret** plus a rare sighting of a **Dartford warbler** in the Thames Slope Field. Waders including **greenshank** and **bar-tailed godwit** also gathered in large numbers down on the mudflats.

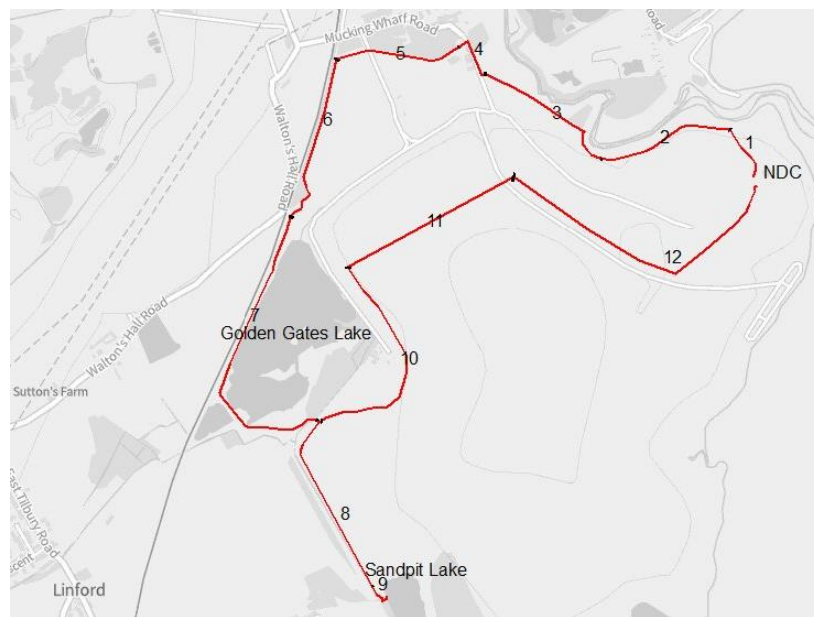


Figure 1. BBS transect map



Figure 2. Number of pairs of key species in 2022 compared to 2021

Grassland and Meadows

Three surveys were conducted on the reserve over the course of the season using the Rapid Grassland Assessment (RGA) method. An RGA is not as in-depth as a traditional botanical but provides a snapshot of the health of the grasslands. The site was divided up into sections (in this case by fields) and 20 points were plotted in a “W” shape through each field. At each stop data was collected about the length of the sward, the percentage cover of herbs, bare ground and scrub cover. As well as this, the presence of a list of positive and negative indicator species were recorded which were used to help determine the health of the field being surveyed.

The three survey areas were the Thames Slope Field, Summer Pasture and the Coronation Meadow. 2022 was the third survey completed in the coronation meadow and so we are starting to see yearly trends in that data however, this was the first year we were able to complete surveys in the Thames Slope Field and Summer Pasture.

The below list of positive indicators was chosen as they are easy to identify quickly in the field. It is important to note that some of these species do not occur at all at Thameside as the list was created for broad use across multiple neutral grassland sites.

- | | |
|--------------------------|-------------------------|
| 1. Agrimony | 15. Green-winged Orchid |
| 2. Bee Orchid | 16. Harebell |
| 3. Betony | 17. Lady's Bedstraw |
| 4. Bird's-foot Trefoil | 18. Meadow Vetchling |
| 5. Black Knapweed | 19. Meadowsweet |
| 6. Bugle | 20. Milkwort sp. |
| 7. Burnet-saxifrage | 21. Ox-eye Daisy |
| 8. Common Spotted Orchid | 22. Pepper Saxifrage |
| 9. Cowslip | 23. Pignut |
| 10. Cuckoo Flower | 24. Ragged Robin |
| 11. Devil's-bit Scabious | 25. Red Clover |
| 12. Field Scabious | 26. Salad Burnet |
| 13. Goat's-beard | 27. Selfheal |
| 14. Grass Vetchling | 28. Tormantil |
| | 29. Yellow Rattle |

At each stopping point on the transect the surveyor would scan the surrounding area and mark yes or no as to whether any of these species were present. The threshold for a floristically healthy field is that at least 50% of the stops have one or more positive indicators. In the Coronation Meadow, all 20 stops had at least one of these species. The most abundant from the list were **ox-eye daisy**, **red clover** and **yellow rattle**.

The herb ratio in the Coronation Meadow generally increased towards the bottom of the meadow into the areas that are regularly cut for hay. Ideally the herb coverage should be over 50% this means that in a metre squared quadrat over half of the quadrat had a species of herb in it. (Herb in this case means any broadleaf flowering plant).

It is difficult to truly assess the state of the other two fields as we only have one year of data however the Thames Slope Field showed positive signs though without grazing and cutting this could quickly become engulfed by scrub. This will be considered in the way this field is managed in the future as it would be excellent to increase the area in which we have high floristic diversity.

The Summer Pasture has much lower level of diversity however, this has never been managed as a wildflower meadow but as an area of rank grassland and scrub. As such this field had much higher numbers of the negative indicator species such as **spear thistle** and **ragwort**. This is not currently too much of an issue and the summer pasture is proving to be one of the better parts of the site for butterflies and moths, especially the **small skipper**, **marbled white** and **cinnabar moth**.

While these surveys were being conducted and as we worked around the site, the number of orchid spikes were recorded. Three species were recorded in total: **Common spotted orchid** (2 spikes), **bee orchid** (36 spikes) and **pyramidal orchid** (69 spikes).

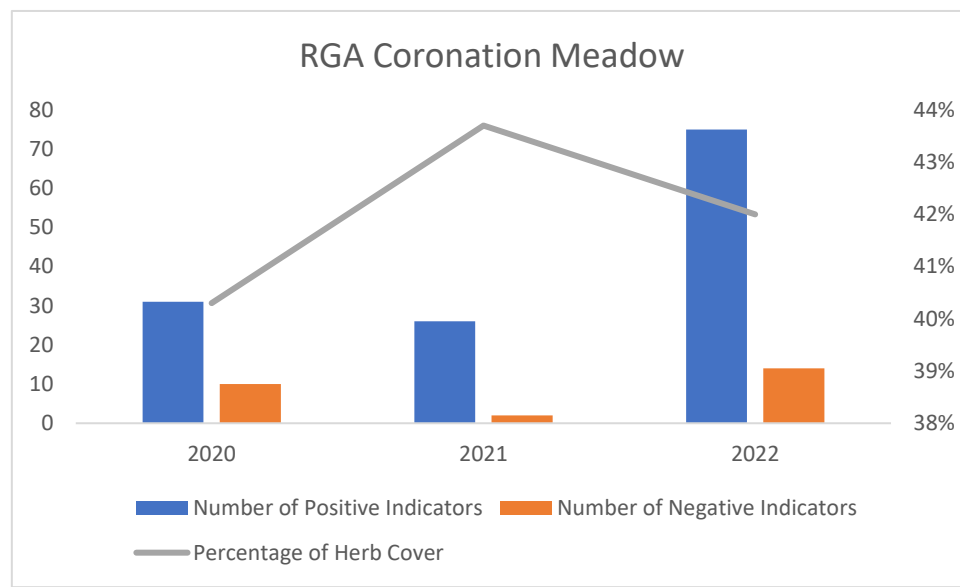


Figure 3. Rapid Grassland Assessment data from 2020-2022



Plate 2. Pyramidal Orchid

Butterflies

Butterflies were recorded using the standard UKBMS methodology which is similar in structure to that of the breeding bird survey whereby a transect was set up and then divided into sections. We divided the transect up using natural changes in habitat or fabricated changes across the site such as margins between fields etc.

The surveys were conducted once a month from May through to September and we recorded any species of butterfly that was observed while walking the transect. The surveys were only carried out in suitable weather conditions i.e., light wind, warm temperatures and no rain and at appropriate times of day (between 11am and 3pm).

The list below shows the species that were observed throughout the survey season

- | | |
|-----------------------|-------------------------|
| 1. Brimstone | 13. Orange tip |
| 2. Brown argus | 14. Peacock |
| 3. Clouded yellow | 15. Red Admiral |
| 4. Comma | 16. Ringlet |
| 5. Common blue | 17. Small copper |
| 6. Essex skipper | 18. Small heath |
| 7. Gatekeeper | 19. Small skipper |
| 8. Green veined white | 20. Small tortoiseshell |
| 9. Holly blue | 21. Small white |
| 10. Large white | 22. Speckled wood |
| 11. Marbled white | 23. Wall brown |
| 12. Meadow brown | |

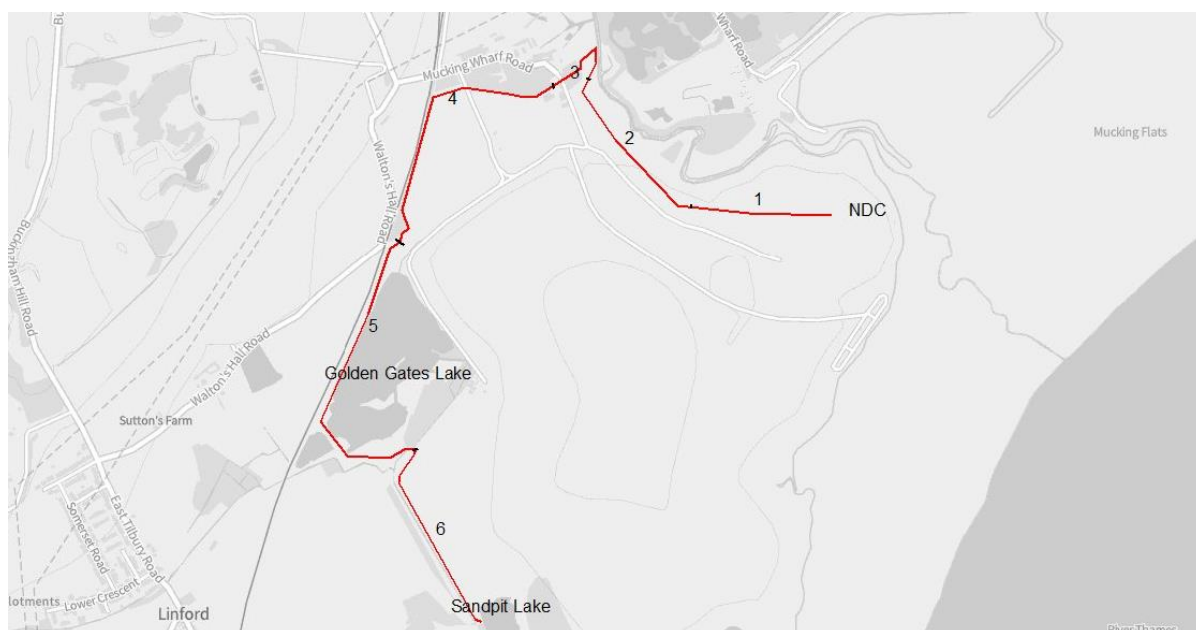


Figure 4. Butterfly transect map

A total of **534** butterflies and **23** species were recorded across the season. The more common species such as the **small white**, **small skipper**, **marbled white** and **meadow brown** were seen in good numbers this year along with several sightings of high priority species such as the **wall brown** and **small heath** which are in rapid decline in the UK as well as migrant species like the **clouded yellow**. A group of hatched eggs were found while clearing back blackthorn in the autumn which are thought to belong to the elusive **brown hairstreak** which is a UK BAP high priority species and a newly recorded species for Thameside!

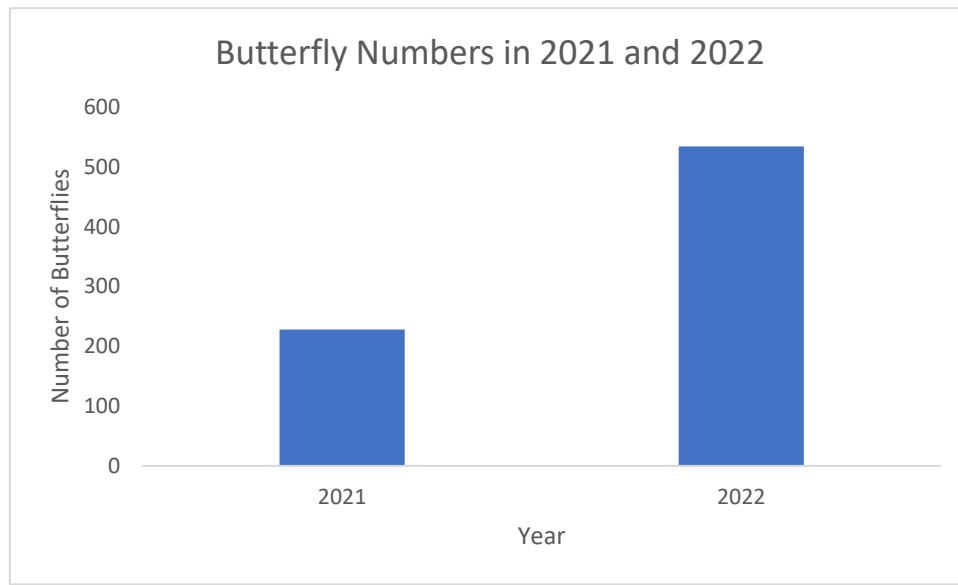


Figure 5. Comparison of butterfly numbers between 2021 and 2022

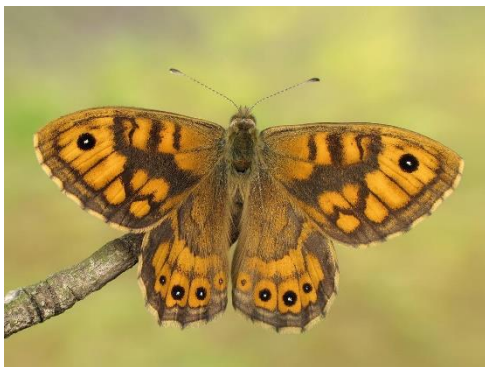


Plate 3. (Top left) wall brown, (top right) clouded yellow, (bottom left) brown hairstreak, (bottom right) small heath

Reptiles

Reptiles seem to have had a particularly difficult year at the reserve. There is a possibility that there have been natural changes that have made it more difficult to detect them during surveys or that have caused them to disperse into areas of the reserve that are more difficult to access.

The surveys were carried out as they were in previous years by using roofing felt and corrugated bitumen roofing sheets cut up into small squares. These refugia were put out across the site in March and allowed to 'bed in' for a month before the surveys began.

Surveys were carried out monthly from April – June and in September and October. It is standard practice not to include July and August simply because the refugia warm up too quickly and the reptiles move off into the undergrowth far earlier in the day which could result in inaccurate data.

Ideally surveys were carried out on mild days with broken cloud and little to no wind. The best temperature for surveying is between 10 and 18 degrees as this is when reptiles are more likely to use refugia to thermoregulate.

Species

Month	Adder	Grass snake	Common Lizard	Slow worm
April	5	1	11	47
May	2	1	0	24
June	3	0	4	4
September	4	3	17	19
October	1	0	12	2
Total	15	5	44	96

Figure 6. Number of reptiles observed throughout the season



Plate 4. Adder



Plate 5. Common Lizard

Moths

Moth surveys were a new addition to the survey programme for 2022 with no previous site records for species diversity or numbers of individuals etc. As such, all data collected this year will act as a baseline for future years of data collection.

To carry out the survey a Heath Trap using a low light actinic bulb was placed in the cottage garden and left on overnight. Egg boxes were placed in the trap to provide places for captured moths to roost. The trap was then checked first thing in the morning and the results recorded.

Weather is a crucial element to a successful trapping session. Ideally the trap should be placed out on cloudy evenings and better yet during a new moon to minimise the amount of other light that could potentially reduce catch numbers. Heavy rain was avoided, however, a constant light drizzle is considered good for trapping.

Moths were identified using a range of methods including field guides and ID apps such as Seek. Once the moths were identified they were released in areas of long grass to protect them from predation.

A total of **58** species were recorded and **197** individuals observed.

- | | | |
|--------------------------------|--|--------------------------------|
| 1. Angle shades | 21. Emperor | 40. Orange swift |
| 2. Barred grass veneer | 22. Flame shoulder | 41. Plain Plume |
| 3. Bird cherry ermine | 23. Flounced rustic | 42. Riband wave |
| 4. Brightline brown eye | 24. Garden carpet | 43. Ruby tiger |
| 5. Buff ermine | 25. Garden rose tortrix | 44. Setaceous Hebrew character |
| 6. <i>Celypha rivulana</i> | 26. Garden tiger | 45. Shuttle-shaped dart |
| 7. Centre barred swallow | 27. Hook tipped grass veneer | 46. Six-striped rustic |
| 8. Chinese character | 28. Household casebearer | 47. Small blood-vein |
| 9. Cinnabar | 29. humming-bird Hawk | 48. Small square spot |
| 10. Common grass veneer | 30. Jersey tiger | 49. Spongy moth |
| 11. Common wainscot | 31. Large yellow underwing | 50. Straw barred pearl |
| 12. Common wave | 32. Lattice heath | 51. Straw underwing |
| 13. Copper underwing | 33. Lesser broad-bordered yellow underwing | 52. The clay |
| 14. Cream-spot tiger | 34. Lesser yellow underwing | 53. The spectacle |
| 15. Dark pine knot horn | 35. Light emerald | 54. Vines rustic |
| 16. Diamond back | 36. Lime-speck pug | 55. White-bodied conch |
| 17. Dusky thorn | 37. mint moth | 56. Wood carpet |
| 18. Dusty wave | 38. Oak eggar | 57. Wormwood pug |
| 19. Elbow-striped grass veneer | 39. Off-white hedya | 58. Yellow shell |

Plate 6. Moths roosting in the egg boxes



Bats

Bats have not been surveyed at Thameside since 2017 where 6 species were recorded in total: **common pipistrelle**, **soprano pipistrelle**, **Nathusius' pipistrelle**, **Daubenton's**, **Natterer's** and **noctule**.

A new transect was set up that began and ended on Crown Green with a complete circuit of the lake where several potential roost sites have been identified. The first transect was carried out in July when sunset was at approximately 21:20. It was recommended that the survey began 30 minutes before sunset however it became apparent that this was too early for our needs as no bats were detected until much later in the survey.

The conditions for the survey were like many of the others where clear dry nights were chosen. A variety of different detectors were used to ID the bats. A traditional detector which only gave out the frequency of the echo location was used along with an ID chart as well as a more modern plug-in detector which works in conjunction with an app called the EchoMeter. The EchoMeter provides real-time identification as well as an amplified playback setting which allows surveyors to hear the bat's echo location calls while they walk the transect.

During the **2022** surveys, only three species were detected: **Common pipistrelle**, **Natterer's** and **noctule** and these were all concentrated around Crown Green and Mucking Woods despite Golden Gates' high bat roost potential. Bats as a group of species are particularly sensitive to extremes of temperature and following more research, there is a clear link between extreme temperature spikes and a rapid decline in bat numbers. It could be that the weather we experienced in July and August resulted in a decline in numbers locally.

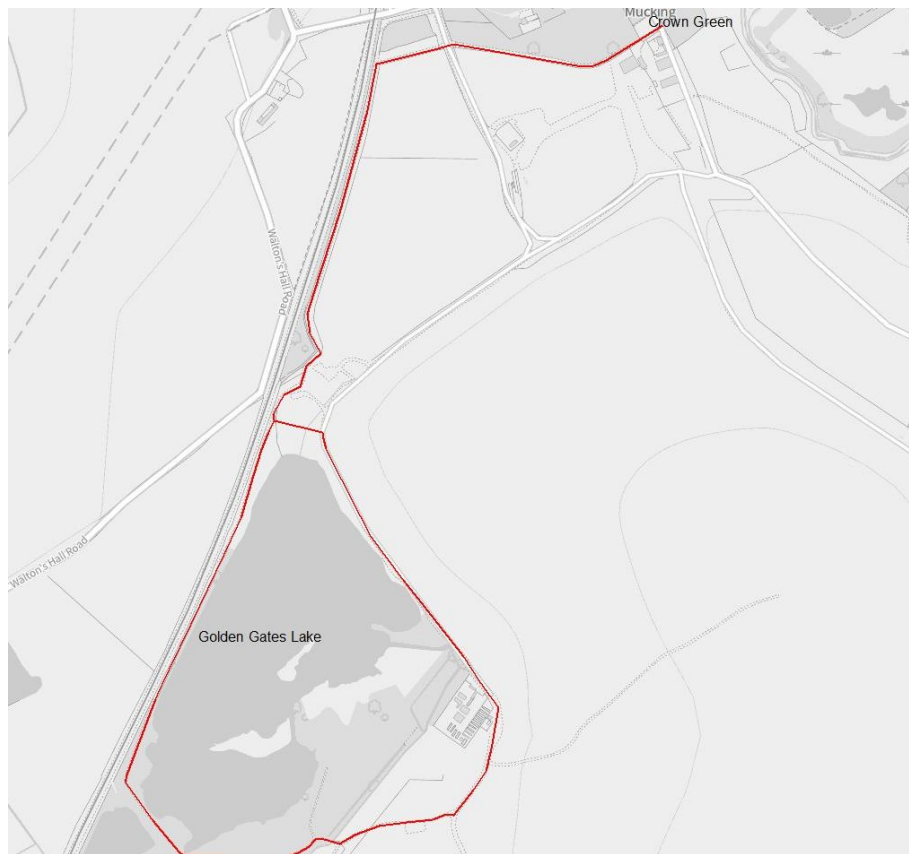


Figure 7. Bat transect map

Site Maps



Figure 8. Map of upper site



Figure 9. Map of lower site

