



MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Environmental Statement

Volume 3, Annex 3.6: Terrestrial invertebrate survey technical report



September 2024
Rev: ES

MOR001-FLO-CON-ENV-RPT-0067
MRCNS-J3303-RPS-10111

PINS Reference: EN020028
APFP Regulations: 5(2)(a)
Document reference: F3.3.6

Document status

Version	Purpose of document	Approved by	Date	Approved by	Date
ES	For issue		September 2024	IM	September 2024

The report has been prepared for the exclusive use and benefit of the Applicants and solely for the purpose for which it is provided. Unless otherwise agreed in writing by RPS Group Plc, any of its subsidiaries, or a related entity (collectively 'RPS') no part of this report should be reproduced, distributed or communicated to any third party. RPS does not accept any liability if this report is used for an alternative purpose from which it is intended, nor to any third party in respect of this report. The report does not account for any changes relating to the subject matter of the report, or any legislative or regulatory changes that have occurred since the report was produced and that may affect the report.

The report has been prepared using the information provided to RPS by its client, or others on behalf of its client. To the fullest extent permitted by law, RPS shall not be liable for any loss or damage suffered by the client arising from fraud, misrepresentation, withholding of information material relevant to the report or required by RPS, or other default relating to such information, whether on the client's part or that of the other information sources, unless such fraud, misrepresentation, withholding or such other default is evident to RPS without further enquiry. It is expressly stated that no independent verification of any documents or information supplied by the client or others on behalf of the client has been made. The report shall be used for general information only.

Prepared by:

**Morgan Offshore Wind Limited
Morecambe Offshore Windfarm Ltd**

Prepared for:

**Morgan Offshore Wind Limited
Morecambe Offshore Windfarm Ltd**

Contents

1	TERRESTRIAL INVERTEBRATE SURVEY TECHNICAL REPORT	1
1.1	Introduction.....	1
1.1.1	Overview	1
1.1.2	Study area.....	1
1.1.3	Survey area.....	1
1.1.4	Contextual Data	2
1.1.5	Relevant Legislation	4
1.1.6	Consultation	4
1.2	Methodology.....	5
1.2.1	Overview	5
1.2.2	Desk study	5
1.2.3	Site specific surveys	5
1.3	Results	10
1.3.1	Desk study	10
1.3.2	Site-specific surveys	11
1.4	Summary	22
1.5	References	23

Tables

Table 1.1:	Summary of key desktop sources.....	5
Table 1.2:	Survey conditions during terrestrial invertebrate surveys	9
Table 1.3:	Sites scoped in for terrestrial invertebrate surveys within the survey area.....	11
Table 1.4:	Sites scoped out for terrestrial invertebrate surveys (contextual)	11
Table 1.5:	Terrestrial invertebrate survey sites and dates	14
Table 1.6:	Species of conservation concern recorded during field surveys.....	15
Table 1.7:	Invertebrate assemblages derived from Pantheon	16

Figures

Figure 1.1:	Terrestrial invertebrate study area and survey area	3
Figure 1.2:	Terrestrial invertebrate survey locations and scoping result (sheet 1)	17
Figure 1.3:	Terrestrial invertebrate survey locations and scoping result (sheet 2)	18
Figure 1.4:	Terrestrial invertebrate survey locations and scoping result (sheet 3)	19
Figure 1.5:	Terrestrial invertebrate survey site 1 results	20
Figure 1.6:	Terrestrial invertebrate survey site 3 results	21

Appendices

APPENDIX A :	TERRESTRIAL INVERTEBRATE SURVEY DATA.....	25
APPENDIX B :	INVERTEBRATE CONSERVATION CRITERIA.....	56

Glossary

Term	Meaning
Applicants	Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL).
Expert Working Group (EWG)	A forum for targeted engagement with regulators and interested stakeholders through the Evidence Plan Process.
Environmental Impact Assessment	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Evidence Plan Process (EPP)	A voluntary consultation process with specialist stakeholders to agree the approach to, and information to support, the EIA and Habitats Regulations Assessment processes for certain topics.
Habitats Regulations	The Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended)
Lancashire Key Species	Species recognised by Lancashire Environmental Records Network as having a recognised status internationally, nationally or locally by the Lancashire Environment Records Network (LERN).
Mean High Water Springs	The height of mean high water during spring tides in a year.
Morecambe Offshore Windfarm: Transmission Assets	The offshore export cables, landfall and onshore infrastructure required to connect the Morecambe Offshore Windfarm to the National Grid.
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The offshore and onshore infrastructure connecting the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm to the national grid. This includes the offshore export cables, landfall site, onshore export cables, onshore substations, 400 kV grid connection cables and associated grid connection infrastructure such as circuit breaker compounds. Also referred to in this report as the Transmission Assets, for ease of reading.
Morgan Offshore Wind Project: Transmission Assets	The offshore export cables, landfall and onshore infrastructure required to connect the Morgan Offshore Wind Project to the National Grid.
Pantheon	An analytical tool developed by Natural England and the Centre for Ecology & Hydrology to assist with the analysis of invertebrate species samples.
Planning Inspectorate	The agency responsible for operating the planning process for applications for development consent under the Planning Act 2008.
Red Data Book	Also known as the IUCN Red List. The world's most comprehensive information source on extinction risk status of animal, fungus and plant species.
Section 41 habitats and species	List of priority habitats and species in England for public bodies, landowners and funders to use for biodiversity conservation.

Term	Meaning
Site fidelity	The tendency of animals to return to familiar breeding, feeding or recently visited areas.
Specific Assemblage Type	Assemblages of invertebrates relating to favoured habitats and characterised by ecological restricted species.
Species Quality Index	A measure of the number of rare species in a sample, divided by the total number of species in a sample.
Species Quality Score	A score assigned to an invertebrate species based on its conservation status, the scores are used to create the Species Quality Index.
Study area	This is an area which is defined for each environmental topic which includes the Transmission Assets Order Limits as well as potential spatial and temporal considerations of the impacts on relevant receptors. The study area for each topic is intended to cover the area within which an impact can be reasonably expected.
Survey area	The area within which each survey has been undertaken. This may differ from the Study Area as a Survey Area will be based on species or survey-specific guidance on the extent of survey required, which may be limited by, for example, habitat conditions, or be defined in terms of buffer areas around an area of potential impact.
Transmission Assets	See Morgan and Morecambe Offshore Wind Farms: Transmission Assets (above).
Transmission Assets Order Limits	The area within which all components of the Transmission Assets will be located, including areas required on a temporary basis during construction and/or decommissioning.
Transmission Assets Order Limits: Onshore	The area within which all components of the Transmission Assets landward of Mean High Water Springs will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds). Also referred to in this report as the Onshore Order Limits, for ease of reading.

Acronyms

Acronym	Meaning
DD	Data Deficient
Defra	Department for the Environment, Food & Rural Affairs
EIA	Environmental Impact Assessment
ES	Environmental Statement
EWG	Expert Working Group
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
LERN	Lancashire Environmental Records Network
LC	Least Concern
MAGIC	Multi Agency Geographic Information for the Countryside

Acronym	Meaning
NR	Nationally Rare
NS	Nationally Scarce
RDB	Red Data Book
SAT	Specific Assemblage Type
S41	Section 41 habitats and species
SPI	Species of Principal Importance
SQI	Species Quality Index
SQS	Species Quality Score

Units

Unit	Description
°C	Degrees Celsius
km ²	Square kilometres
km	Kilometres

1 Terrestrial invertebrate survey technical report

1.1 Introduction

1.1.1 Overview

1.1.1.1 This document forms Volume 3, Annex 3.6: Terrestrial invertebrate survey technical report of the Environmental Statement (ES) prepared for the Morgan and Morecambe Offshore Wind Farms: Transmission Assets (referred to hereafter as ‘the Transmission Assets’). The ES presents the findings of the Environmental Impact Assessment (EIA) process for the Transmission Assets.

1.1.1.2 The purpose of this technical report is to present the results of the terrestrial invertebrate desk study and site-specific field surveys undertaken between September 2023 and August 2024 to inform Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES.

1.1.1.3 The desk study and site-surveys were designed to determine the presence or likely absence of protected or scarce terrestrial invertebrate species and notable invertebrate assemblages.

1.1.2 Study area

1.1.2.1 The study area is intended to cover the area within which an impact can be reasonably expected and describes the geographical extent subject to desk-based research.

1.1.2.2 The study area is the area subject to desk based research for terrestrial invertebrates and comprises the Onshore Order Limits and a 1 km buffer (hereafter referred to as the ‘study area’). The 1 km buffer was chosen to provide contextual data on the presence of terrestrial invertebrate species relevant to the area associated with the Scheme.

1.1.2.3 The location and geographic extent of the study area is presented in **Figure 1.1** of this technical report.

1.1.3 Survey area

1.1.3.1 The survey area is defined as the area within which each survey has been undertaken and is based on species or site-specific guidance on the extent of survey required. The survey area for terrestrial invertebrates (hereafter referred to as the ‘survey area’) is defined as the Onshore Order Limits, as shown in **Figure 1.1** of this technical report below.

1.1.3.2 All the ecological data collected as part of the ES for the Transmission Assets has been made publicly available through the relevant local biological records centre (Lancashire Environmental Records Network (LERN)).

1.1.4 Contextual Data

- 1.1.4.1 Owing to the iterative design process of the Transmission Assets, some site surveys were undertaken outside of the Onshore Order Limits. These surveys may have been located within previous iterations of the Onshore Order Limits. Nevertheless, information from these surveys has been included in this technical report because it provides context regarding the ecological sensitivity of the wider area and informs Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES (where relevant).
- 1.1.4.2 Contextual data from within the survey area has also been included in this technical report. This includes where data has been collected, including incidental findings, within parcels which were scoped out as requiring detailed terrestrial invertebrate surveys.
- 1.1.4.3 This ensures that the ES is accurately informed with data from within the Onshore Order Limits (i.e. that may be subject to direct impacts) and data from outside the Onshore Order Limits (i.e. that may be subject to indirect impacts). Any contextual information (based on survey data collected from outside the survey area) is clearly marked throughout this technical report.

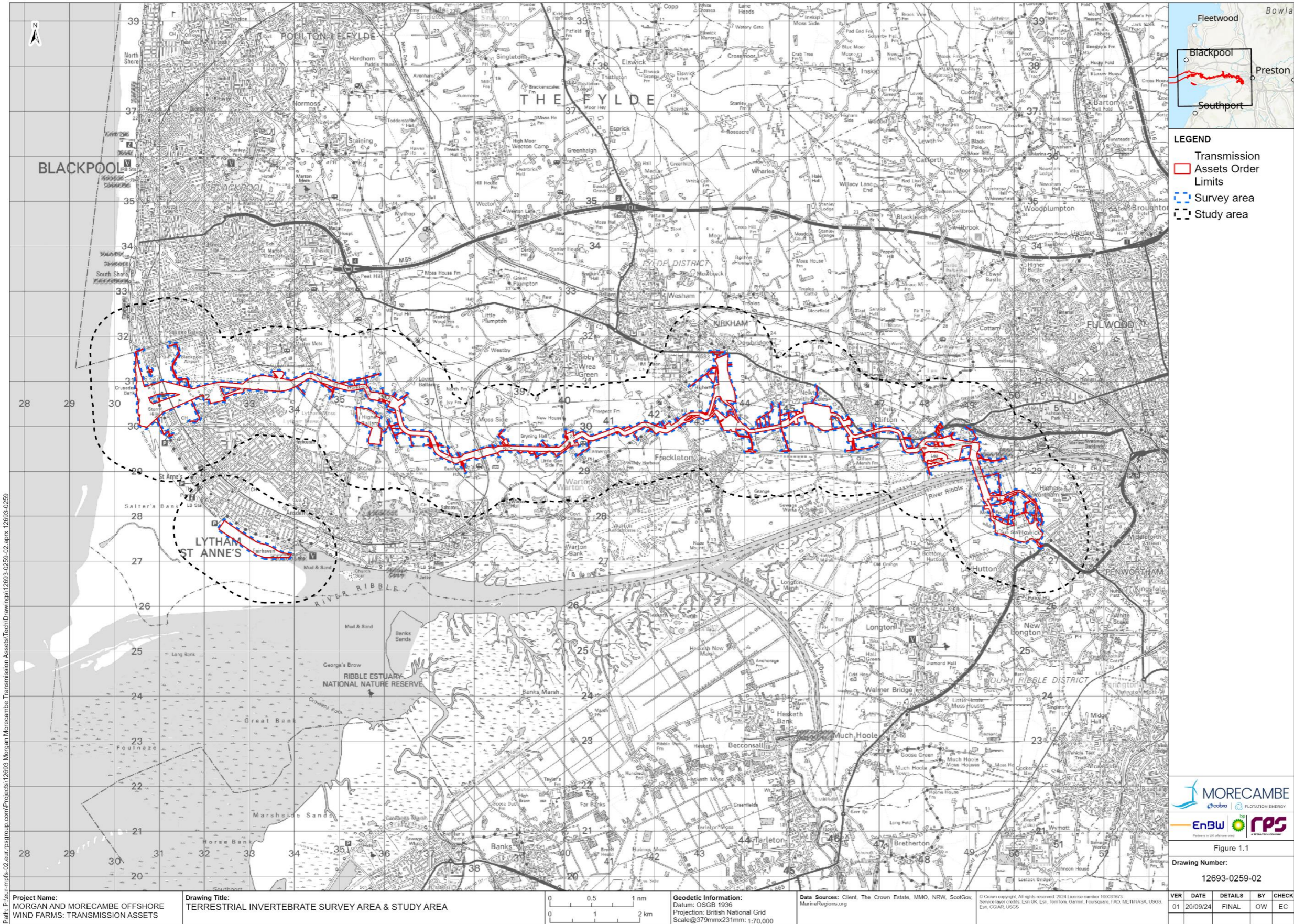


Figure 1.1: Terrestrial invertebrate study area and survey area

1.1.5 Relevant Legislation

- 1.1.5.1 The following key pieces of legislation are relevant for terrestrial invertebrates in the UK: the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981.
- 1.1.5.2 The Conservation of Habitats and Species Regulations 2017 protects the following invertebrates: large blue butterfly *Maculinea arion*, Fisher's estuarine moths *Gortyna borelli lunata* and little ramshorn whirlpool snail *Anisus vorticulus*. Under Regulation 43 it is an offence to:
- deliberately kill, injure, disturb or capture them;
 - deliberately destroy their eggs;
 - damage or destroy their breeding sites and resting places (even when invertebrates are not present); or
 - possess, control or transport them (alive or dead); or
 - offer to sell or exchange, or offer to do so.
- 1.1.5.3 The Wildlife and Countryside Act 1981 fully protects 27 species of terrestrial invertebrate due to their rarity. Under Section 9 it is an offence to:
- intentionally kill, injure, or take the animal from the wild;
 - damage or destroy any structure used by that species for shelter and protection including obstruction of its use or disturbing the animal;
 - possess the species (dead or alive); or
 - trade or sell the species, dead, alive or any derivatives.
- 1.1.5.4 The Natural Environment and Rural Communities Act 2006 includes a total of 406 invertebrate species listed as Species of Principal Importance (SPI). Public bodies and local planning authorities have a legal duty to have regard for conserving a SPI when exercising their duties. Example species include alder leaf beetle *Agelastica alni* and small heath *Coenonympha pamphilus*.
- 1.1.5.5 Other species of invertebrate are protected against sale only and have no specific habitat protection.

1.1.6 Consultation

- 1.1.6.1 In October 2022, the Applicants submitted an EIA Scoping Report to the Planning Inspectorate, which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects for the construction, operation and maintenance and decommissioning phases of the Transmission Assets.
- 1.1.6.2 The scope, methodology and findings of the terrestrial invertebrate surveys, including those undertaken beyond the current Onshore Order Limits, were discussed, and agreed with stakeholders via regular onshore ecology Expert Working Group (EWG) meetings. Further detail

regarding consultation undertaken with respect to onshore ecology, including terrestrial invertebrate surveys can be found in section 3.3 of Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES.

1.2 Methodology

1.2.1 Overview

1.2.1.1 A combination of desk studies and field surveys were undertaken to ascertain the presence or likely absence of terrestrial invertebrate species and the diversity of these species within the study and survey areas.

1.2.1.2 The results of the desk study are presented in Volume 3, Annex 3.1: Onshore ecology desk study technical report of the ES and summarised below.

1.2.2 Desk study

1.2.2.1 Terrestrial invertebrate species data was collected from existing studies and datasets. These are summarised in **Table 1.1** below.

Table 1.1: Summary of key desktop sources

Title	Source	Year	Author
Lancashire Environmental Records Network (LERN)	LERN data share site	2024	LERN
Multi Agency Geographic Information for the Countryside (MAGIC)	Department for Environment, Food and Rural Affairs (Defra)	2024	Defra
UK Protected Area Joint Nature Conservation Committee (JNCC)	JNCC website	2024	JNCC

1.2.3 Site specific surveys

Scoping surveys

1.2.3.1 In order to inform the baseline to be reported within the ES, as well as to inform any necessary mitigation, Extended Phase 1 surveys were carried out for the Transmission Assets. Extended Phase 1 habitat surveys undertaken between September 2022 and May 2024 identified 15 sites within the Phase 1 habitat survey area with the potential to support protected or notable terrestrial invertebrates and were subject to scoping surveys (see Volume 3, Annex 3.3: Phase 1 habitat, national vegetation classification and hedgerow survey technical report of the

ES). Three of these sites were within the Onshore Order Limits and scoped in for further survey (see **section 1.3.2**).

- 1.2.3.2 Sites for terrestrial invertebrate surveys were scoped in based on the quality of habitat present and whether connected habitats were associated with rare or scarce terrestrial invertebrates or important terrestrial invertebrate assemblages, e.g., woodland, saltmarsh or grazing pasture with scrub. The 15 sites subject to the initial scoping assessment were assigned a number from one to 15.
- 1.2.3.3 All sites with potential to support protected or notable terrestrial invertebrates were visited and assessed by an experienced and competent terrestrial invertebrate specialist. The assessment scoped each site in or out for further, detailed terrestrial invertebrate assemblage surveys.
- 1.2.3.4 Terrestrial invertebrate scoping surveys comprised a visual assessment of the diversity, extent and quality of the habitats present and professional judgement. For the Transmission Assets, the competent terrestrial invertebrate surveyor complemented the visual assessment with intermittent spot searching and sweep-netting assessments as described in **paragraph 1.2.3.5**. The additional spot and sweep assessments were intended to better support the surveyor's assessment of the habitats.

Terrestrial invertebrate assemblage surveys

- 1.2.3.5 Site-specific field surveys utilised a variety of search techniques, including sweep-netting, hand searching, spot searching and netting of flying insects. The surveys all utilised timed samples that broadly followed methodologies defined in *Surveying Terrestrial and Freshwater Invertebrates for Conservation Evaluation* (Drake *et al.*, 2007) and *Measuring Biological Diversity* (Magurran, 2004). Both the Drake *et al.* and Magurran methodologies were adapted to a time standardised sampling method, where each sample was collected in a standardised way to ensure better replicability of samples both within and between different sites along the Onshore Order Limits. Survey methodologies were agreed with relevant stakeholders as part of regular EWG meetings (see section 3.3 of Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES).
- 1.2.3.6 Sweep-netting with a 40 centimetres (cm) diameter white bag net was the main technique used. The net was used to sweep from side to side as the surveyor paced steadily through the search area. The same net was used to sample the foliage of any shrubs or trees within the survey area. A minimum of ten samples were surveyed at each site in accordance with Magurran (2004).
- 1.2.3.7 Specimens were extracted from the net with a pooter. When sampling was completed, or the pooter became too full, the contents were killed using ethyl acetate and transferred to 30 millilitres (ml) soda glass tubes together with a data label.
- 1.2.3.8 Additional ground searching was undertaken in areas of open, sparsely vegetated areas, by looking under rocks and other debris.

1.2.3.9 Three surveys are recommended between May to September to record emerging species across seasons. Surveys were completed in 2023 and 2024.

Identification

1.2.3.10 Where practical, invertebrates were identified in the field but wherever doubt existed, one or more specimens were collected for more detailed inspection.

1.2.3.11 Samples were preserved in 70% alcohol (industrial methylated spirits) and identified after the survey, using microscopic examination and identification literature, and where necessary reference material was compared with museum collections (as per accepted methods in Drake *et al.*, 2007).

1.2.3.12 As wide a taxonomic range as possible was identified, in order to sample numerous ecological types, i.e., invertebrates with widely differing natural histories.

1.2.3.13 Owing to time constraints, more readily identifiable groups which do not require very time-consuming techniques for identification were prioritised where necessary. Protected or otherwise notable species were recorded.

1.2.3.14 Where possible, the following orders and families of invertebrates were named to the species level:

- *Isopoda* – Woodlice;
- *Araneae* – Spiders;
- *Raphidiidae* – Snake flies;
- *Neuroptera* – Lacewings;
- *Odonata* – Dragonflies and Damselflies;
- *Orthoptera* – Grasshoppers and Crickets;
- *Dermaptera* – Earwigs;
- *Hemiptera*, *Auchenorrhyncha* – Froghoppers, Leafhoppers and Planthoppers (excluding females of difficult genera);
- *Hemiptera*, *Heteroptera* – True bugs (excluding smaller *Miridae*);
- *Hemiptera*, *Aphididae* – Aphids (conspicuous species only);
- *Lepidoptera* – Butterflies and Moths;
- *Coleoptera* – Beetles (all except small *Aleocharine* rove beetles and other very small obscure families);
- *Diptera* – True flies (except, *Cecidomyiidae*, *Chironomidae*, *Ceratopogonidae*, *Simulidae*, *Phoridae*, *Sphaeroceridae*, and females of some groups which are not identifiable);
- *Hymenoptera*, *Aculeata* – Sawflies, Ants, Wasps and Bees; and
- *Mollusca* – Slugs and Snails.

Data analysis

- 1.2.3.15 Collected invertebrate samples were time standardised (Drake *et al.*, 2007) to allow analysis by Natural England’s Pantheon System (‘Pantheon’) (Heaver *et al.*, 2017; Webb *et al.*, 2018). Most of the standardised sampling protocols recommended by Natural England (Darke *et al.*, 2007) are based on a set sampling/sorting time so results are comparable between surveys. Natural England’s Pantheon system is designed to analyse invertebrate sample data (Webb *et al.*, 2018) and determine the quality of the invertebrate assemblage in a national context. It assigns scores to each assemblage based on their rarity and site fidelity (i.e., how likely each assemblage is to occur only in one particular habitat or microhabitat).
- 1.2.3.16 Species that are recorded only in a particular habitat (habitat specialists forming part of a Specific Assemblage Type (SAT)) are also assessed as a percentage against the national pool of species that occur in that habitat. SAT are generated by Pantheon using the species composition obtained from field surveys and are coded with letters and numbers (e.g., F112 open short sward).
- 1.2.3.17 The Species Quality Index (SQI) is a measure of how many species are associated with a particular habitat. The higher the score the more likely it is that the assemblage is of high quality, as it contains a higher number of rare species associated with the habitat. The SQI is a numerical scoring system contained within Pantheon. Each species recorded from a sample is assigned a Species Quality Score (SQS) based on their conservation status (see **Appendix B** of this technical report).
- 1.2.3.18 The SQI is the sum of all SQSs divided by the number of species in that sample. This score is multiplied by 100 to give a three figure value without decimal places (e.g. 100 rather than a 1.00). At present, there is no published guidance on the levels of importance related to SQI, however based on professional judgement, sites with a number of rare or scarce species with high habitat fidelity which are of high conservation importance are likely to score over 150.
- 1.2.3.19 For the purposes of habitat monitoring (and for condition assessment of protected sites such as Sites of Special Scientific Interest (SSSIs)), the number of species recorded, which are specific to a SAT, can also be used to assess the condition of the habitat for supporting higher quality assemblages, with degraded sites described as ‘unfavourable’ condition and habitats in good condition supporting high numbers of qualifying species described as ‘favourable’ condition. Several visits are, however, required in order to fully assess assemblage quality as different species are active during different parts of spring and summer (see **paragraph 1.2.3.9**).
- 1.2.3.20 Information on the status of each species was obtained from the most recent relevant species status reviews, including the following.
- *A review of the Hemiptera of Great Britain: The Aquatic and Semi-aquatic Bugs* (Cook, 2015).

- *A review of the scarce and threatened bees, wasps and ants of Great Britain* (Falk, 1991).
- *A Provisional Assessment of the Status of Acalypratae flies in the UK* (Falk and Chandler, 2016).
- *A Provisional Assessment of the Status of Calypterate flies in the UK* (Falk and Pont, 2017).
- *A review of the scarce and threatened beetles of Great Britain: The leaf beetles and their allies, Chrysomelidae, Megalopodidae and Orsodacnidae* (Hubble, 2017).
- *A review of the scarce and threatened Coleoptera of Great Britain. Part 1* (Hyman and Parson, 1992) and *Part 2* (Hyman and Parsons, 1994).
- *A review of the scarce and threatened Hemiptera of Great Britain* (Kirby, 1992).
- *Atlas of Britain and Ireland’s Larger Moths* (Randle et al, 2019).
- *A Review of the Non-Marine Mollusca of Great Britain* (Seddon et al, 2014).
- *A review of the Orthoptera (Grasshoppers and crickets) and allied species of Great Britain: Orthoptera, Dictyoptera, Dermaptera, Phasmida* (Sutton, 2015).
- *A review of the beetles of Great Britain: Ground Beetles (Carabidae)* (Telfer, 2016).

1.2.3.21 A summary of relevant terrestrial invertebrate species conservation designations is provided in **Appendix B** of this technical report.

Survey conditions

1.2.3.22 Full surveys were only conducted when weather conditions were suitable which includes dry days with sunny spells. A summary of weather conditions during the terrestrial invertebrate surveys is provided in **Table 1.2**.

Table 1.2: Survey conditions during terrestrial invertebrate surveys

Survey date	Temperature	Weather conditions
11/09/2023	17°C	Humid, overcast
12/09/2023	15°C	Warming, overcast
13/09/2023	15°C	Warm, sunny, light breeze
14/09/2023	18°C	Warm, sunny, occasionally overcast, light breeze
30/05/2024	16°C	Cool, sunny, light northerly breeze, occasional cloud
31/05/2024	14°C	Cool, sunny, northeast breeze, up to 16°C
05/06/2024	14°C	Warm in sheltered areas, sunny, occasional cloud

Survey date	Temperature	Weather conditions
11/07/2024	14°C	Temperature rising rapidly to 23°C. Cloudy, overcast, humid, light breeze
20/08/2024	14°C	Temperatures rose to 20°C. Dry, mostly overcast with sunny intervals

Limitations

- 1.2.3.23 The weather conditions during the scoping assessments and the detailed terrestrial invertebrate surveys were initially sub-optimal but improved throughout the duration of the survey sufficiently to ensure the surveys were valid.
- 1.2.3.24 Of the 15 sites within the terrestrial invertebrate survey area, access was not granted to site 3 due to the presence of livestock during the scoping surveys. The inaccessible site was therefore not surveyed in September 2023, but was subsequently surveyed and visited in June and August 2024. The 15 sites are shown in **Figure 1.2**.
- 1.2.3.25 Site 3 therefore requires additional visits to assess the site assemblage quality across different parts of spring and summer as it was not fully assessed in September. In the absence of sufficient survey information and in line with the precautionary approach, site 3 is assumed to support invertebrate assemblages with a minimum SQI of 150, indicating that they could be of ecological value.
- 1.2.3.26 Three survey visits have been undertaken at site 1 and two at site 3.

1.3 Results

1.3.1 Desk study

- 1.3.1.1 The desk study identified 19 species of invertebrate and one species of crustacean within the study area as defined above, comprising one species of beetle, 12 species of butterfly, three species of dragonfly, two species of moth, and one species of cricket.
- 1.3.1.2 Of the 19 species recorded, seven were recorded within the Onshore Order Limits, of which four are Section 41 (S41) species, four are Local Biodiversity Action Plan (LBAP) species and five are Lancashire Key Species.
- 1.3.1.3 The following species were recorded in the desk study and during field surveys: alder leaf beetle *Agelastica alni* and speckled wood *Pararge aegeria*.
- 1.3.1.4 Further details and figures can be found in Volume 3, Annex 3.1: Onshore ecology desk study technical report of the ES.

1.3.2 Site-specific surveys

Site scoping for terrestrial invertebrates

- 1.3.2.1 An assessment of the extended Phase 1 habitat survey data and the desk study data identified 15 sites that had potential to support terrestrial invertebrates. All 15 were subject to a scoping field survey assessment by a competent terrestrial invertebrate specialist.
- 1.3.2.2 Two of the sites were within the Onshore Order Limits and scoped in for detailed terrestrial invertebrate surveys. One site was scoped in due to presence of pond margin wetland habitat and site 3 was scoped in due to the presence of saltmarsh habitat.
- 1.3.2.3 The description and rationale of the scoping assessment is presented in **Table 1.3** below for the sites scoped in for detailed survey within the survey area. The locations of all sites subject to scoping are displayed on **Figure 1.2** of this technical report.

Table 1.3: Sites scoped in for terrestrial invertebrate surveys within the survey area

Site Number	Scoping Result	Habitat description and rationale for scoping in or out	Survey date
1	Scoped in	Sheep grazed pasture with river margin and pond margin wetlands of value for invertebrates.	13 September 2023
3	Scoped in	Saltmarsh with high potential for scarce/rare invertebrates present.	11 September 2023

- 1.3.2.4 The 13 other sites subject to a scoping field survey are outside the survey area and/or scoped out for detailed survey and are therefore presented for contextual information (see **section 1.1.4**). The description and rationale of the scoping assessment for contextual sites is presented in **Table 1.4** and the locations of the contextual sites are displayed on **Figure 1.2**.
- 1.3.2.5 Four sites were assessed to be suitable for terrestrial invertebrates but were scoped out owing to their location outside the Onshore Order Limits (sites 2, 5, 12, 13). The remaining nine sites were scoped out as they were not suitable for protected or notable terrestrial invertebrates.

Table 1.4: Sites scoped out for terrestrial invertebrate surveys (contextual)

Site Number	Scoping Result	Habitat description and rationale for scoping in or out	Survey date
2	Scoped out	Pond margins with diverse marshy habitats present outside the survey area.	14 September 2023
4	Scoped out	Limited potential for invertebrates. Golf course dominated by amenity grassland.	12 September 2023

Site Number	Scoping Result	Habitat description and rationale for scoping in or out	Survey date
5	Scoped out	Limited potential for invertebrates. Silage field which had recently been cut.	12 September 2023
6	Scoped out	Grazed livestock fields located outside the survey area.	12 September 2023
7	Scoped out	Limited potential for invertebrates. Majority improved cattle grazed pasture bordered by intensively managed hedges, margins of ponds with little or no marginal vegetation.	11 September 2023
8	Scoped out	Sole area of interest for invertebrates is small inaccessible copse by A583 but has only limited potential for invertebrates.	14 September 2023
9	Scoped out	Limited potential for invertebrates. Majority improved cattle grazed pasture bordered by intensively managed hedges, margins of ponds with little or no marginal vegetation.	13 September 2023
10	Scoped out	Limited potential for invertebrates. Majority improved cattle grazed pasture bordered by intensively managed hedges, margins of ponds with little or no marginal vegetation.	13 September 2023
11	Scoped out	Limited potential for invertebrates. Majority improved cattle grazed pasture bordered by intensively managed hedges.	14 September 2023
12	Scoped out	No access due to livestock although ditches observed, and outside the survey area.	13 September 2023
13	Scoped out	Saltmarsh with high potential for scarce/rare invertebrates present but no access due to livestock and outside the survey area.	13 September 2023
14	Scoped out	Limited potential for invertebrates. Cut field with largely dry ditch and very limited marsh areas.	11 September 2023
15	Scoped out	Limited potential for invertebrates. Majority improved cattle grazed pasture bordered by taller hedges.	13 September 2023

Terrestrial invertebrate assemblage scoping surveys and analysis

1.3.2.6 In total 196 species of terrestrial invertebrates were recorded during the terrestrial invertebrate surveys. Of the 196 species, 65 were listed with a conservation status of Least Concern (LC), which indicates

widespread and generally common species, with no current conservation importance.

- 1.3.2.7 One species of alder leaf beetle *Agelastica alni* recorded at sites 2, 6, 9, and 15 was Data Deficient (DD) and Nationally Rare (NR), and one species of butterfly recorded at site 7, the speckled wood *Pararge aegeria* was a Lancashire Key Species. A ground beetle *Bembidion maritimum* and two shorebugs *Salda littoralis* and *Saldula palustris* were also recorded at site 2, all of which are Nationally Scarce (NS).
- 1.3.2.8 The 196 species included 61 species recorded from the 13 sites scoped out for detailed terrestrial invertebrate assemblage surveys and 8 of these records were collected from incidental recordings. The results are presented in **Table 1.6** and details of all 196 species are presented in **Appendix A**. Conservation statuses are defined in **Appendix B** and the locations of protected and notable species are displayed on **Figure 1.2** to **Figure 1.6**.
- 1.3.2.9 The Pantheon analysis concluded that five SATs were present. The SATs comprised four assemblages associated with open habitats: F001 scrub edge; F002 rich flower resource; F003 scrub-heath and moorland; F111 bare sand and chalk. One assemblage was associated with trees, A211 heartwood decay.
- 1.3.2.10 None of the five assemblages qualified as being in favourable conservation status condition as insufficient qualifying species were recorded (see **Table 1.7**). A defined benchmark number of specialist species must be present and recorded for the SAT to be favourable, otherwise Pantheon returns a condition of unfavourable. Each of the SATs and its association with a site is presented in **Table 1.7**. Conservation status definitions are given in **Appendix B** of this technical report.
- 1.3.2.11 The SQIs for all 15 sites was 100. This is a baseline number reflecting the limited numbers of qualifying species represented in each assemblage.
- 1.3.2.12 **Appendix A** summarises contextual information from terrestrial invertebrate surveys. A total of 196 species of terrestrial invertebrates were recorded during the terrestrial invertebrate surveys. Of the 196 species, five are of conservation concern and listed in **Table 1.6**: *Agelastica alni* (Data Deficient, Nationally Rare), *Pararge aegeria* (Lancashire Key Species, Least Concern), and *Bembidion maritimum*, *Salda littoralis*, *Saldula palustris* (Nationally Scarce).

Terrestrial invertebrate detailed assemblage surveys

- 1.3.2.13 Sites 1 and 3 were subject to detailed assemblage surveys. The survey dates are in **Table 1.5**.
- 1.3.2.14 Site 1 was sampled in four locations during survey visit one. Fifty-three different species were recorded on visit one and 51 different species on visit two. One species of conservation concern was recorded on both survey visits: the alder leaf beetle *Agelastica alni*. Details of this species are in **Table 1.6**.

- 1.3.2.15 Site 3 was sampled in four locations during survey visit one and six locations on visit two, with 245 different species recorded. Three species of conservation concern were recorded. Details of these species are in **Table 1.6**.
- 1.3.2.16 Contextual results including species of conservation concern are in **Table 1.6**. This includes species recorded in sites 2, 5, 8 and 15.

Table 1.5: Terrestrial invertebrate survey sites and dates

Site Number	Rationale for further survey requirements	Scoping survey date	Survey visit 1	Survey visit 2	Survey visit 3
1	Pond margin wetlands of value for invertebrates.	13 September 2023	13 September 2023	30 May 2024	11 July 2024
3	Saltmarsh with high potential for scarce/rare invertebrates present.	11 September 2023	05 June 2024	20 August 2024	September 2024 ¹

¹ This survey was not complete at the time of submission. Results from this survey will be presented post acceptance of the application.

Table 1.6: Species of conservation concern recorded during field surveys

Group	Species	Status	Distribution and habitat	Site number(s)
Coleoptera: <i>Chrysomelidae</i> (a beetle)	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)	Associated with alders, including <i>Alnus glutinosa</i> and <i>A. cordata</i> , also birch <i>Betula pendula</i> . Formerly considered extinct in Britain but re-established in northern England in 2004 and has subsequently spread widely throughout much of England south to the New Forest and in parts of Wales. Adults fly readily and are often found some distance from breeding habitats (Hubble, 2014).	Site 1 (within Onshore Order Limits) Sites 2, 5, 15 (Contextual data)
Lepidoptera: <i>Nymphalidae</i> (a butterfly)	<i>Pararge aegeria</i>	Lancashire Key Species; Least Concern (LC)	Widespread in the UK, north to Lancashire and in western and northeast Scotland. Its range is expanding in many areas, particularly in the north. Primarily associated with shaded woodlands but also with scrub and hedgerows.	Site 8 (Contextual data)
Coleoptera: <i>Carabidae</i> (a ground beetle)	<i>Bembidion maritimum</i>	Nationally Scarce (NS)	Local and scarce. Found in muddy conditions in reedbeds, saltmarshes or on the coast.	Site 3 (within Onshore Order Limits)
Hemiptera: <i>Saldidae</i> (a shorebug)	<i>Salda littoralis</i>	Nationally Scarce (NS)	Widespread in northern Britain but mainly coastal in the south. Found in vegetated silty margins of rivers and lakes, or brackish habitats (Cook, 2015).	Site 3 (within Onshore Order Limits)
Hemiptera: <i>Saldidae</i> (a shorebug)	<i>Saldula palustris</i>	Nationally Scarce (NS)	Widespread up to southern Scotland. Primarily found on estuarine mudflats, where it can stand tidal inundation, leading a partly subaquatic lifestyle.	Site 3 (within Onshore Order Limits)

Table 1.7: Invertebrate assemblages derived from Pantheon

Broad biotope/habitat	SAT	SQI	Reported condition	Number of associated species	Sites with best representation
Open habitats	F001 scrub edge	100	Unfavourable (one species, 11 required) – Site 8	One species, Speckled wood butterfly <i>Pararge aegeria</i> . Also a Lancashire Key Species.	Site 8
Open habitats	F002 rich flower resource	100	Unfavourable (five species, 15 required) – Site 1. Unfavourable (four species, 15 required) – Site 3.	Five species, honeybee <i>Apis mellifera</i> , and bumblebees <i>Bombus hortorum</i> , <i>Bombus pascuorum</i> and <i>Bombus hypnorum</i> , mining bee <i>Andrena cineraria</i>	Site 2 - six recorded species present. <i>Bombus pascuorum</i> also recorded on sites 3 and 9.
Open habitats	F003 scrub-heath and moorland	100	Unfavourable (one species, nine required) – Site 1.	One species, the ground beetle <i>Curtonotus aulicus</i> .	Site 1
Open habitats	F111 bare sand and chalk	100	Unfavourable (one species, 19 required)- Site 1	One species, the rhopalid bug <i>Corizus hyoscyami</i> .	Site 1
Tree-associated	A212 bark and sapwood decay	100	Unfavourable (three species, 19 required) – Site 1	Three species of beetle: <i>Anaspis fasciata</i> , <i>Anaspis maculate</i> , <i>Anaspis regimbarti</i>	Sites 1 and 2 – two species recorded at site 2
Tree-associated	A211 heartwood decay	100	Unfavourable (one species, 6 required) – Site 1	1 species, the hoverfly <i>Myathropa florea</i> .	Site 1

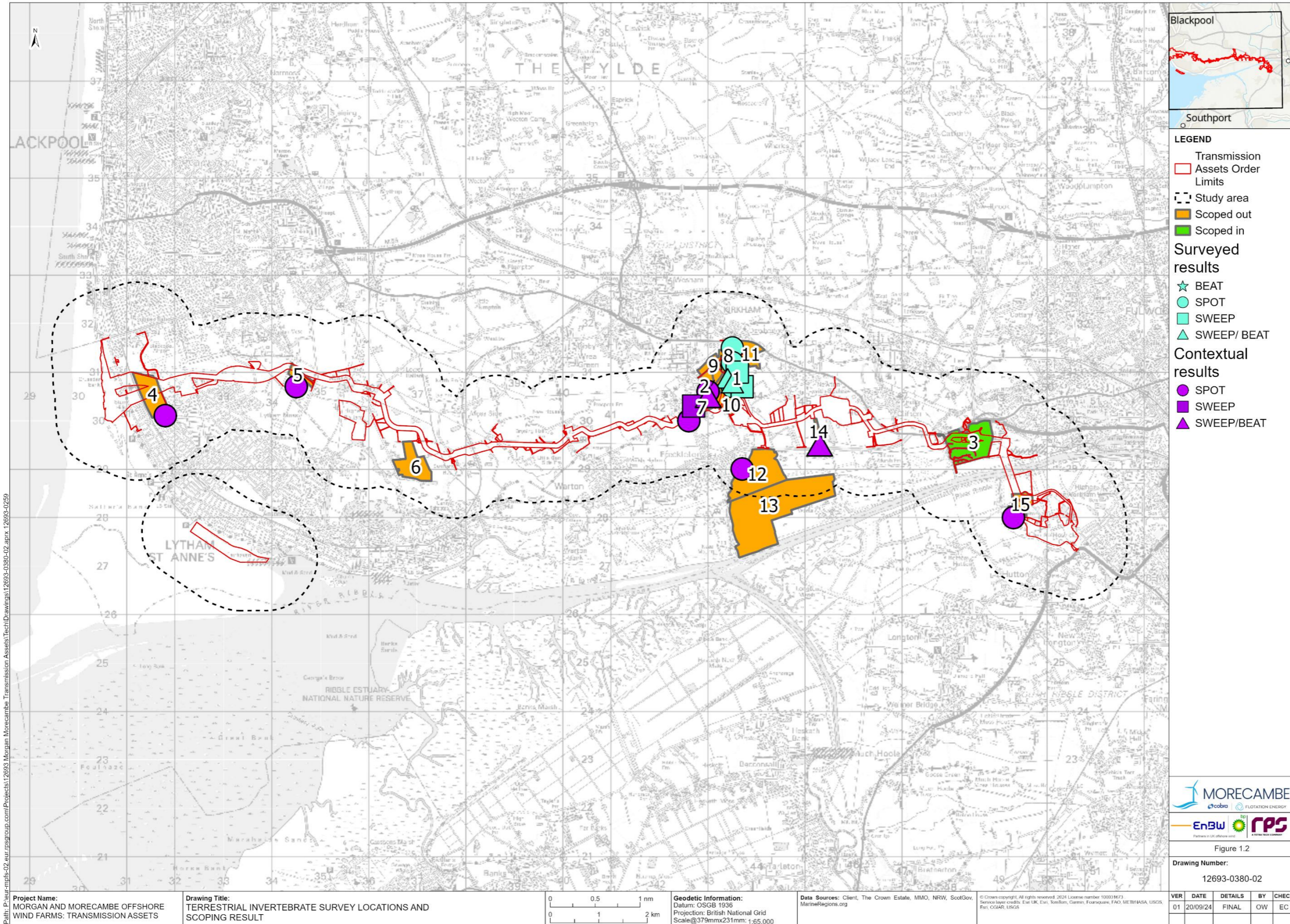


Figure 1.2: Terrestrial invertebrate survey locations and scoping result (sheet 1)

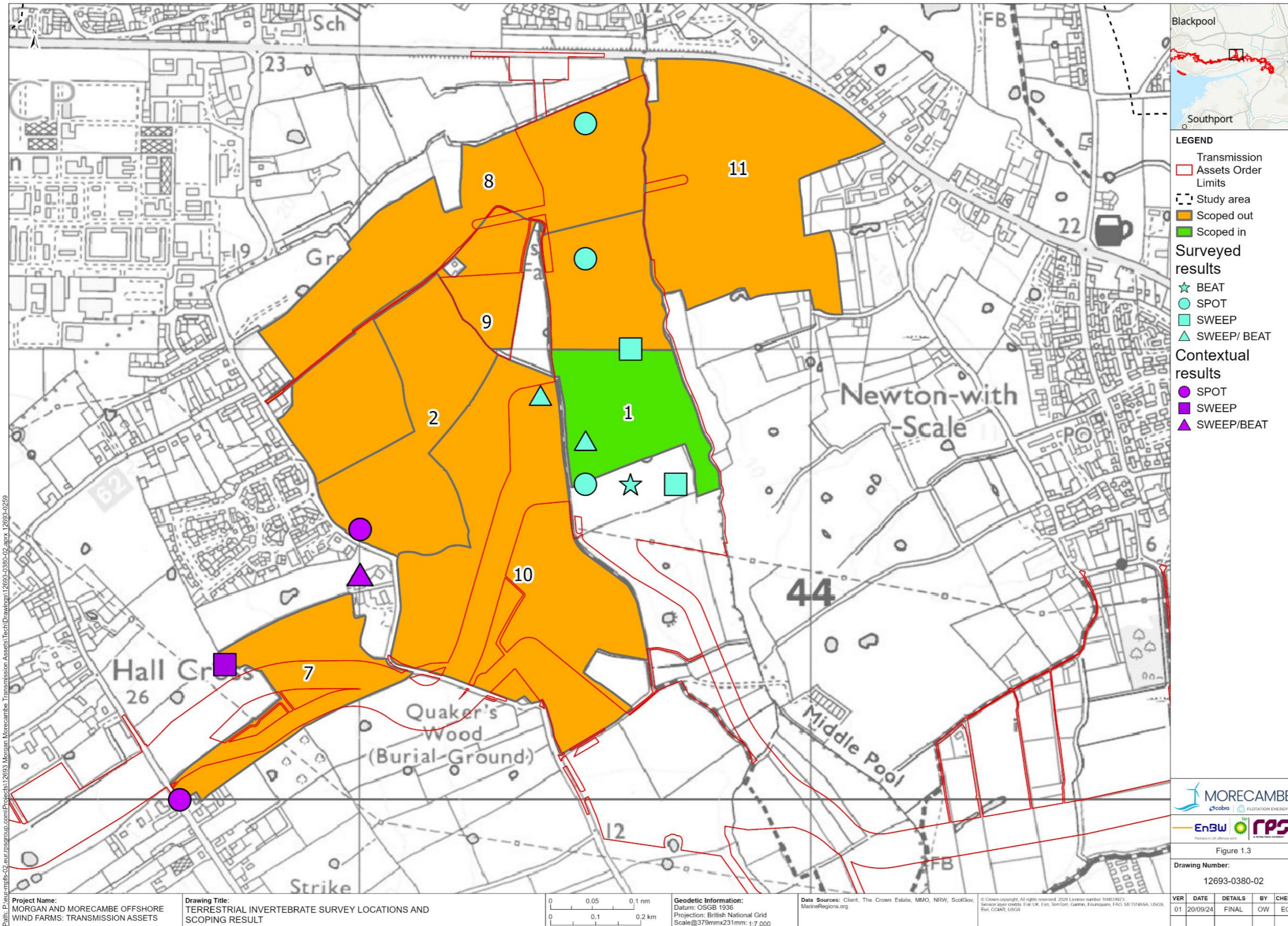


Figure 1.3: Terrestrial invertebrate survey locations and scoping result (sheet 2)

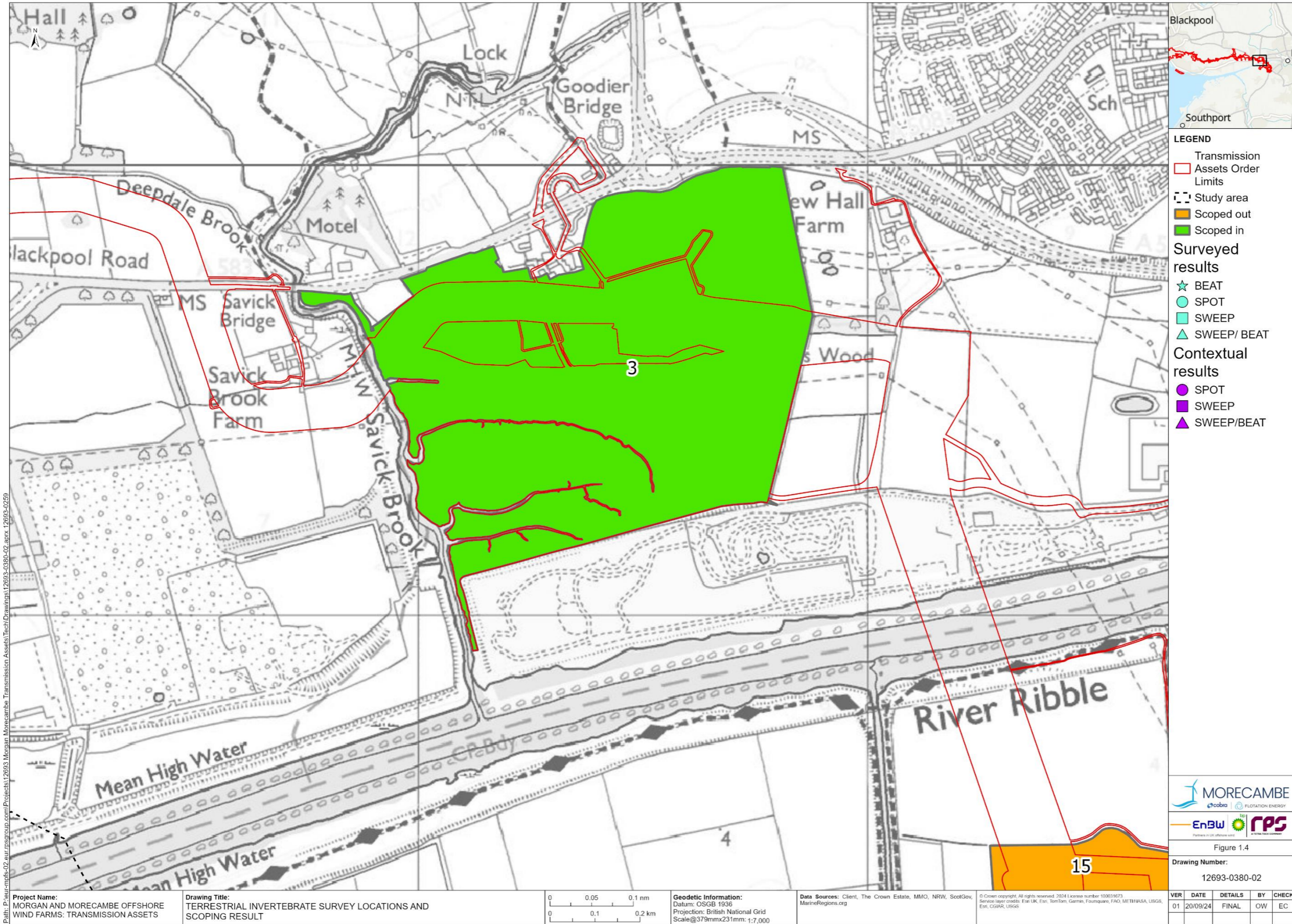


Figure 1.4: Terrestrial invertebrate survey locations and scoping result (sheet 3)

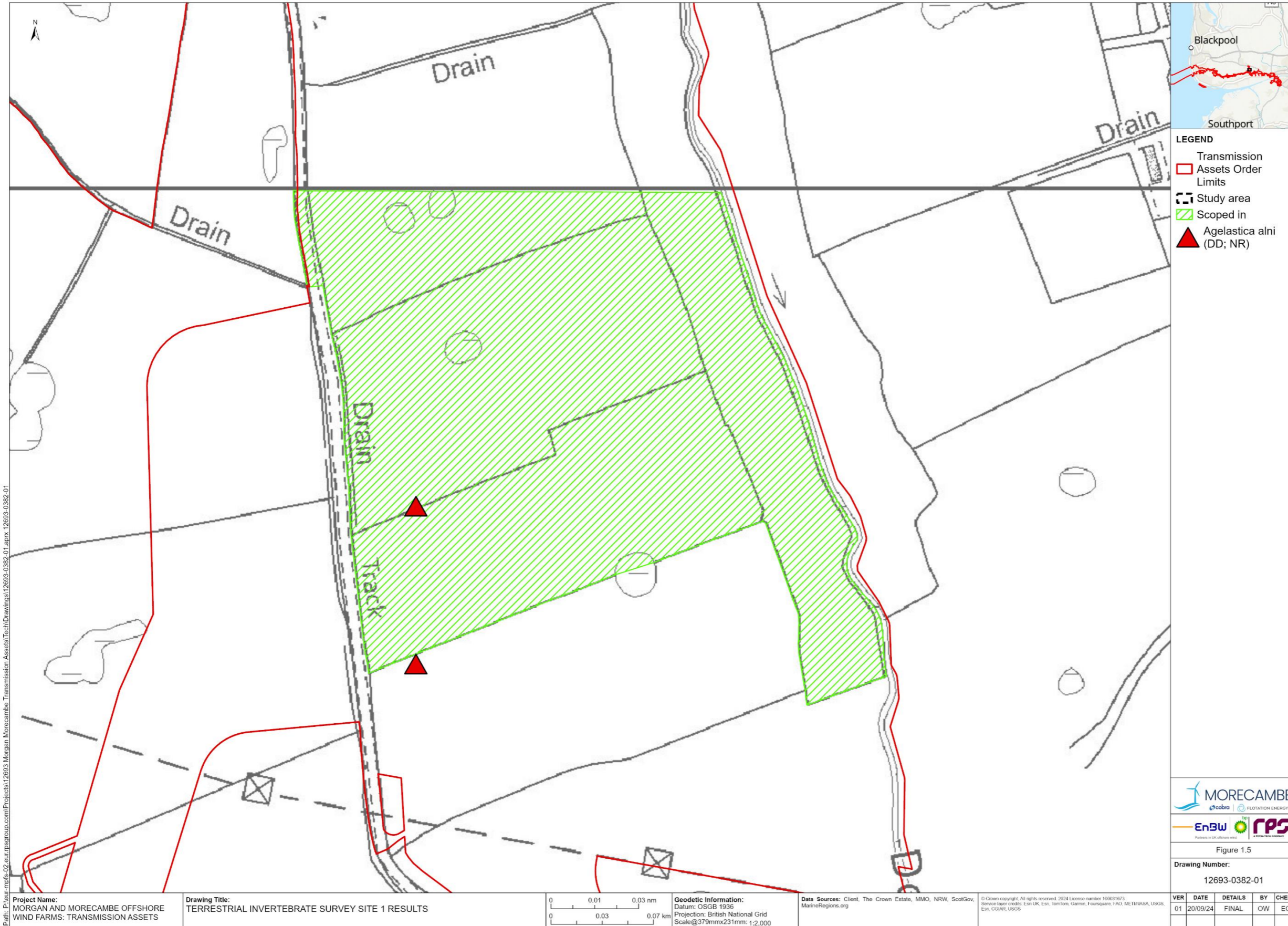


Figure 1.5: Terrestrial invertebrate survey site 1 results

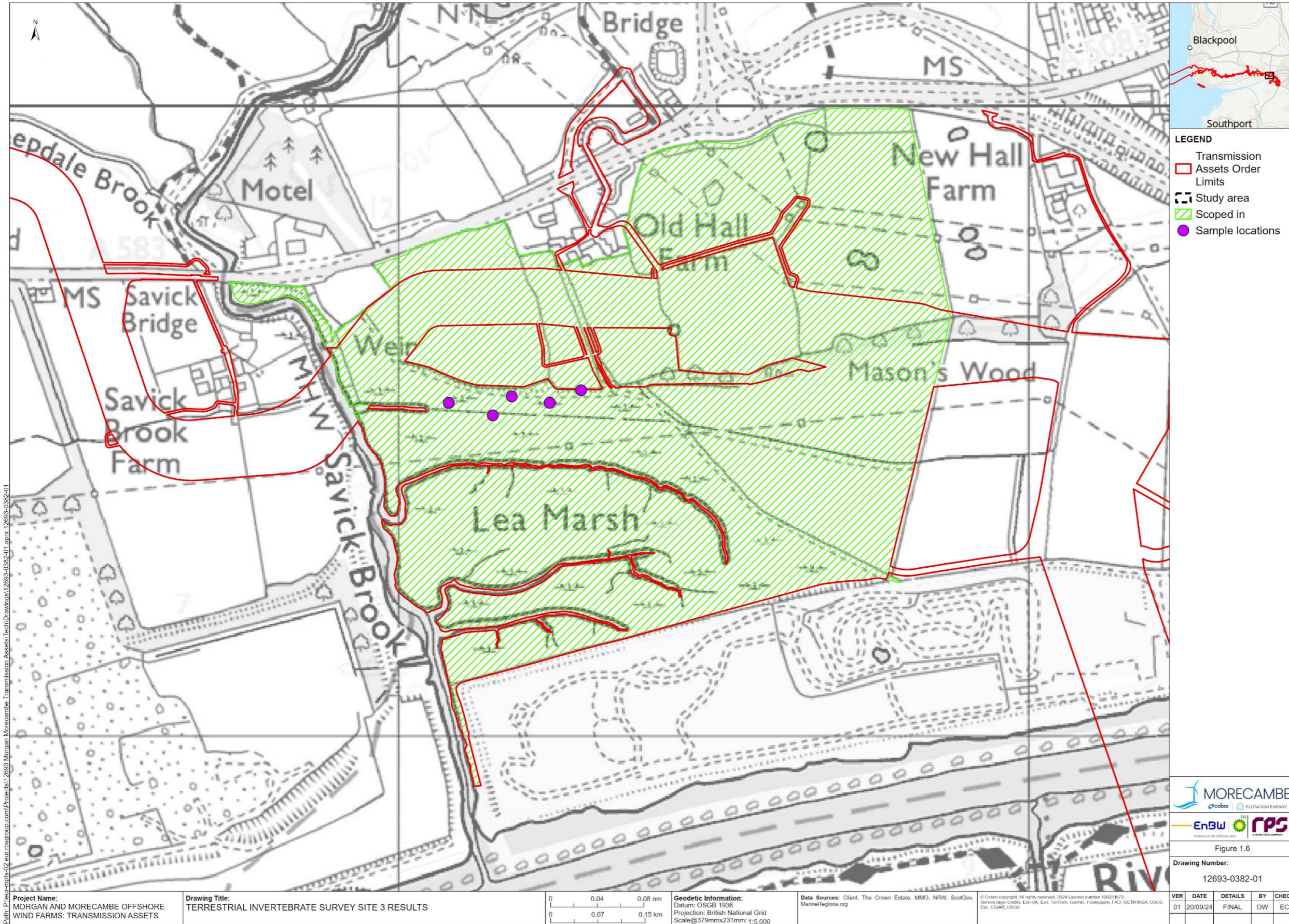


Figure 1.6: Terrestrial invertebrate survey site 3 results

1.4 Summary

- 1.4.1.1 This technical report presents the results of the terrestrial invertebrate desk study and the field surveys undertaken to inform Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES.
- 1.4.1.2 The desk study identified 19 species of invertebrate and one species of crustacean within 1 km of the Onshore Order Limits comprising one species of beetle, 12 species of butterfly, three species of dragonfly, 2 species of moth, and one species of cricket.
- 1.4.1.3 Of the 19 species recorded, seven were recorded within the Onshore Order Limits, of which four are S41 species, four are LBAP species and five are Lancashire Key Species. The following species were recorded in the desk study and during field surveys: alder leaf beetle *Agelastica alni* and speckled wood *Pararge aegeria*.
- 1.4.1.4 Of the 15 sites assessed as being potentially suitable for terrestrial invertebrates, two within the Onshore Order Limits were scoped in for detailed terrestrial invertebrate assemblage surveys. The remaining 13 sites were scoped out and not subject to any further survey. Contextual data for terrestrial invertebrates were recorded during the scoping assessments for sites 2 and 4 to 15. Incidental records for eight species were recorded across the site during the scoping surveys.
- 1.4.1.5 In total, 166 species of terrestrial invertebrates were recorded during the terrestrial invertebrate assemblage surveys at Site 1 and 245 species of terrestrial invertebrates at site 3. Of these species, 65 were listed with a conservation status of LC, which indicates widespread and generally common species. One species of alder leaf beetle, which is DD and NR was recorded at sites 1, 2, 5, and 15, and a speckled wood, which is a Lancashire Key Species, was recorded at site 8. A ground beetle *Bembidion maritimum*, long-antennaed saline ground beetle *Bembidion iricolor* and two shorebugs *Salda littoralis* and *Saldula palustris*, salt marsh money spider *Silometopus ambiguus* were also recorded at site 3, all of which are NS.
- 1.4.1.6 Six SATs were recorded: F001 scrub edge at site 8; F002 rich flower resource also at sites 2, 3 and 9; F003 scrub-heath and moorland at site 1; F111 bare sand and chalk at site 1 and one assemblage associated with trees, A211 heartwood decay, which was recorded at site 1, A212 bark and sapwood decay recorded at site 1. All six SATs recorded SQIs of 100.

1.5 References

Cook, A.A. (2015). A review of the Hemiptera of Great Britain: The Aquatic and Semi-aquatic Bugs. Natural England Commissioned Reports No. 188. Natural England, Sheffield.

Defra (2024) Magic Map Application. Available: <https://magic.defra.gov.uk/MagicMap.aspx>. Accessed: September 2024

Drake C.M., Lott, D.A., Alexander, K.N.A. and Webb, J. (2007). Surveying Terrestrial and Freshwater Invertebrates for Conservation Evaluation. (NERR007). Natural England, Sheffield.

Falk, S.J. (1991). A review of the scarce and threatened bees, wasps and ants of Great Britain. Research and Survey in Nature Conservation 35. Nature Conservancy Council, Peterborough.

Falk, S.J., Ismay, J.W. and Chandler, P.J. (2016). A Provisional Assessment of the Status of Acalyptratae flies in the UK. Natural England Commissioned Reports No. 217. Natural England, Sheffield.

Falk, S.J. and Pont, A.C. (2017). A Provisional Assessment of the Status of Calyptrate flies in the UK. Natural England Commissioned Reports No. 234. Natural England, Sheffield.

Heaver, D., Webb, J., Roy, D., Dean, H., Harvey, M., Macadam, C. and Curson, J. (2017). Pantheon: A New Resource for Invertebrate Survey Standards and Analysis. In Practice 98: 25-29.

Hubble, D.S. (2014). A review of the scarce and threatened beetles of Great Britain: The leaf beetles and their allies, Chrysomelidae, Megalopodidae and Orsodacnidae. Species Status No.19. Natural England Commissioned Reports No. 161. Natural England, Sheffield.

Hyman, P.S. and Parsons, M.S. (1992). A review of the scarce and threatened Coleoptera of Great Britain. Part 1. UK Nature Conservation: 3. Joint Nature Conservation Committee, Peterborough.

Hyman, P.S. and Parsons, M.S. (1994). A review of the scarce and threatened Coleoptera of Great Britain. Part 2. UK Nature Conservation: 3. Joint Nature Conservation Committee, Peterborough.

IUCN 2024. The IUCN Red List of Threatened Species. Version 2024-1. Available: <https://www.iucnredlist.org> Accessed: September 2024.

JNCC (2024) UK Protected Areas Available: <https://jncc.gov.uk/our-work/uk-protected-areas/> Accessed: February 2024.

Joint Nature Conservation Committee (2019). Guidelines for the Selection of Biological SSSIs. Chapter 20 Terrestrial and Freshwater Invertebrates.

Kirby, P. (1992). A review of the scarce and threatened Hemiptera of Great Britain. UK Nature Conservation 2. Joint Nature Conservation Committee, Peterborough.

Lancashire County Council and Lancashire Wildlife Trust Lancashire County Heritage (1998 updated 2005, 2023) Sites Scheme Biological Heritage Sites Guidelines for Site Selection <https://www.lancashire.gov.uk/lern/site-designations/local-sites/biological-heritage-sites/bhs-guidelines-for-site-selection/>. Accessed: July 2024.

Magurran, A.E. (2004) *Measuring Biological Diversity*. Blackwell Publishing, Oxford

Randle, Z., Evans-Hill, L.J., Parsons, M.S., Tyner, A., Bourn, N.A.D., Davis, T., Dennis, E.B., O'Donnell, M., Prescott, T., Tordoff, G.M. and Fox, R. (2019). *Atlas of Britain and Ireland's Larger Moths*. Pisces Publications, Newbury.

Seddon, M.B. Killeen, I.J. and Fowles, A.P. (2014). *A Review of the Non-Marine Mollusca of Great Britain*. Species Status No. 17. NRW Evidence Report No. 14. Natural Resources Wales, Bangor.

Sutton, P.G. (2015). *A review of the Orthoptera (Grasshoppers and crickets) and allied species of Great Britain: Orthoptera, Dictyoptera, Dermaptera, Phasmida*. Species Status No. 21. Natural England Commissioned Report NECR187, Natural England, Sheffield.

Telfer, M.G. (2016). *A review of the beetles of Great Britain: Ground Beetles (Carabidae)*. Species Status No. 25. Natural England Commissioned Report NECR189, Natural England, Sheffield.

Waring, P. and Townsend, M. (2017). *Field Guide to the Moths of Great Britain and Ireland*. British Wildlife Publishing, Totnes.

Webb, J., Heaver, D., Lott, D., Dean, H.J., van Breda, J., Curson, J., Harvey, M.C., Gurney, M., Roy, D.B., van Breda, A., Drake, M., Alexander, K.N.A. and Foster, G. (2018). *Pantheon – database version 3.7.6*.

Appendix A: Terrestrial invertebrate survey data

A.1 Terrestrial invertebrate data for Site 1

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ²
1	13/09/2023	SWEEP	Araneae	Araneidae	<i>Araneus diadematus</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP	Araneae	Araneidae	<i>Larinioides cornutus</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP/BEAT	Coleoptera	Carabidae	<i>Curtonotus aulicus</i>	IUCN-Least Concern (LC)
1	13/09/2023	SPOT	Coleoptera	Chrysomelidae	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)
1	13/09/2023	SWEEP/BEAT	Coleoptera	Chrysomelidae	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)
1	13/09/2023	SWEEP/BEAT	Coleoptera	Chrysomelidae	<i>Cassida rubiginosa</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP/BEAT	Coleoptera	Chrysomelidae	<i>Crepidodera aurata</i>	IUCN-Least Concern (LC)
1	13/09/2023	SPOT	Coleoptera	Chrysomelidae	<i>Gastrophysa viridula</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP/BEAT	Coleoptera	Coccinellidae	<i>Anisosticta 19-punctata</i>	
1	13/09/2023	SWEEP/BEAT	Coleoptera	Coccinellidae	<i>Coccinella 7-punctata</i>	
1	13/09/2023	SWEEP	Coleoptera	Coccinellidae	<i>Harmonia axyridis</i>	
1	13/09/2023	SWEEP/BEAT	Coleoptera	Coccinellidae	<i>Psyllobora 22-punctata</i>	

² Blank cells mean there is no conservation status available for this species.

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ²
1	13/09/2023	SWEEP/BEAT	Coleoptera	Coccinellidae	<i>Subcoccinella 24-punctata</i>	
1	13/09/2023	SWEEP/BEAT	Coleoptera	Curculionidae	<i>Hadroplontus litura</i>	
1	13/09/2023	SWEEP/BEAT	Dermaptera	Forficulidae	<i>Forficula auricularia</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP/BEAT	Dermaptera	Forficulidae	<i>Forficula auricularia</i>	IUCN-Least Concern (LC)
1	13/09/2023	SPOT	Diptera	Muscidae	<i>Mesembrina meridiana</i>	
1	13/09/2023	SWEEP	Diptera	Syrphidae	<i>Helophilus hybridus</i>	IUCN-Least Concern (LC)
1	13/09/2023	SPOT	Diptera	Syrphidae	<i>Myathropa florea</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP	Hemiptera	Acanthosomatidae	<i>Acanthosoma haemorrhoidale</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP/BEAT	Hemiptera	Acanthosomatidae	<i>Acanthosoma haemorrhoidale</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP/BEAT	Hemiptera	Acanthosomatidae	<i>Acanthosoma haemorrhoidale</i>	IUCN-Least Concern (LC)
1	13/09/2023	BEAT	Hemiptera	Anthocoridae	<i>Anthocoris confusus</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Anthocoridae	<i>Anthocoris nemorum</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Anthocoridae	<i>Anthocoris nemorum</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Anthocoridae	<i>Orius vicinus</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Aphrophoridae	<i>Aphrophora alni</i>	
1	13/09/2023	SWEEP	Hemiptera	Aphrophoridae	<i>Neophilaenus lineatus</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Aphrophoridae	<i>Neophilaenus lineatus</i>	
1	13/09/2023	SWEEP	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ²
1	13/09/2023	SWEEP/BEAT	Hemiptera	Carabidae	<i>Paradromius linearis</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP/BEAT	Hemiptera	Cicadellidae	<i>Arthaldeus pascuellus</i>	
1	13/09/2023	SWEEP	Hemiptera	Cicadellidae	<i>Cicadella viridis</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Cicadellidae	<i>Cicadella viridis</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Cicadellidae	<i>Eupterycyba jucunda</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Cicadellidae	<i>Eupteryx atropunctata</i>	
1	13/09/2023	BEAT	Hemiptera	Cicadellidae	<i>Eurhadina concinna</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Cicadellidae	<i>Eurhadina concinna</i>	
1	13/09/2023	BEAT	Hemiptera	Cicadellidae	<i>lassus lanio</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Cicadellidae	<i>Idiocerus herrichii</i>	
1	13/09/2023	SWEEP	Hemiptera	Cicadellidae	<i>Streptanus sordidus</i>	
1	13/09/2023	SWEEP	Hemiptera	Cymidae	<i>Cymus melanocephalus</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Cymidae	<i>Cymus melanocephalus</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Delphacidae	<i>Conomelus anceps</i>	
1	13/09/2023	SWEEP	Hemiptera	Delphacidae	<i>Stenocranus major</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Lygaeidae	<i>Kleidocerys resedae</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Blepharidopterus angulatus</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Blepharidopterus angulatus</i>	
1	13/09/2023	BEAT	Hemiptera	Miridae	<i>Deraeocoris lutescens</i>	
1	13/09/2023	SWEEP	Hemiptera	Miridae	<i>Liocoris tripustulatus</i>	

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ²
1	13/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Liocoris tripustulatus</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Liocoris tripustulatus</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Lygus rugulipennis</i>	
1	13/09/2023	SWEEP	Hemiptera	Miridae	<i>Notostira elongata</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Pantilius tunicatus</i>	
1	13/09/2023	BEAT	Hemiptera	Miridae	<i>Tropidostepes pacificus</i>	None-North American species
1	13/09/2023	SWEEP	Hemiptera	Nabidae	<i>Nabis ferus</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Nabidae	<i>Nabis ferus</i>	
1	13/09/2023	SWEEP	Hemiptera	Nabidae	<i>Nabis limbatus</i>	
1	13/09/2023	SWEEP/BEAT	Hemiptera	Pentatomidae	<i>Troilus luridus</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP	Hemiptera	Rhopalidae	<i>Corizus hyoscyami</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP/BEAT	Hemiptera	Rhopalidae	<i>Corizus hyoscyami</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP/BEAT	Hemiptera	Tingidae	<i>Tingis cardui</i>	
1	13/09/2023	SWEEP	Lepidoptera	Noctuidae	<i>Autographa gamma</i>	
1	13/09/2023	SPOT	Lepidoptera	Nymphalidae	<i>Vanessa atalanta</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP	Lepidoptera	Nymphalidae	<i>Vanessa atalanta</i>	IUCN-Least Concern (LC)
1	13/09/2023	SWEEP	Mollusca	Helicidae	<i>Cepaea nemoralis</i>	
1	13/09/2023	SWEEP	Mollusca	Helicidae	<i>Cornu aspersum</i>	
1	13/09/2023	BEAT	Opiliones	Phalangidae	<i>Dicranopalpus ramosus</i>	
1	30/05/2024	SWEEP	Coleoptera	Cryptophagidae	<i>Telmatophilus typhae</i>	
1	30/05/2024	SWEEP	Araneae	Tetragnathidae	<i>Tetragnatha extensa</i>	IUCN-Least Concern (LC)

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ²
1	30/05/2024	SWEEP	Araneae	Araneidae	<i>Larinioides cornutus</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Odonata	Coenagrionidae	<i>Coenagrion puella</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Diptera	Syrphidae	<i>Lejogaster splendida</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Coleoptera	Coccinellidae	<i>Harmonia axyridis</i>	
1	30/05/2024	SWEEP	Odonata	Coenagrionidae	<i>Coenagrion puella</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Hemiptera	Miridae	<i>Liocoris tripustulatus</i>	
1	30/05/2024	SWEEP	Coleoptera	Chrysomelidae	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)
1	30/05/2024	SWEEP	Araneae	Araneidae	<i>Araniella opisthographa</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Coleoptera	Chrysomelidae	<i>Cassida rubiginosa</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Coleoptera	Coccinellidae	<i>Calvia 14-guttata</i>	
1	30/05/2024	SWEEP	Coleoptera	Scirtidae	<i>Contacyphon coarctatus</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Hemiptera	Miridae	<i>Grypocoris stysi</i>	
1	30/05/2024	SWEEP	Hemiptera	Cicadellidae	<i>Eupteryx aurata</i>	
1	30/05/2024	SWEEP	Diptera	Rhagionidae	<i>Rhagio scolopaceus</i>	IUCN-Least Concern (LC)
1	30/05/2024	SPOT	Diptera	Rhagionidae	<i>Rhagio scolopaceus</i>	IUCN-Least Concern (LC)
1	30/05/2024	SPOT	Diptera	Syrphidae	<i>Lejogaster splendida</i>	IUCN-Least Concern (LC)
1	30/05/2024	SPOT	Diptera	Stratiomyidae	<i>Sargus iridatus</i>	IUCN-Least Concern (LC)
1	30/05/2024	SPOT	Diptera	Syrphidae	<i>Helophilus trivittatus</i>	IUCN-Least Concern (LC)
1	30/05/2024	SPOT	Diptera	Syrphidae	<i>Helophilus pendulus</i>	IUCN-Least Concern (LC)
1	30/05/2024	SPOT	Diptera	Syrphidae	<i>Eristalis tenax</i>	IUCN-Least Concern (LC)
1	30/05/2024	SPOT	Coleoptera	Chrysomelidae	<i>Gastrophysa viridula</i>	IUCN-Least Concern (LC)

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ²
1	30/05/2024	SPOT	Diptera	Scathophagidae	<i>Scathophaga stercoraria</i>	
1	30/05/2024	SPOT	Coleoptera	Chrysomelidae	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)
1	30/05/2024	SPOT	Diptera	Syrphidae	<i>Volucella pellucens</i>	IUCN-Least Concern (LC)
1	30/05/2024	SPOT	Hymenoptera	Apidae	<i>Bombus pascuorum</i>	
1	30/05/2024	SPOT	Hymenoptera	Apidae	<i>Bombus lapidarius</i>	
1	30/05/2024	SPOT	Hymenoptera	Apidae	<i>Bombus hypnorum</i>	
1	30/05/2024	SPOT	Hymenoptera	Apidae	<i>Bombus lucorum</i>	
1	30/05/2024	SPOT	Lepidoptera	Noctuidae	<i>Autographa gamma</i>	
1	30/05/2024	SWEEP	Odonata	Coenagrionidae	<i>Coenagrion puella</i>	IUCN-Least Concern (LC)
1	30/05/2024	SPOT	Coleoptera	Chrysomelidae	<i>Gastrophysa viridula</i>	IUCN-Least Concern (LC)
1	30/05/2024	SPOT	Coleoptera	Coccinellidae	<i>Adalia 2-punctata</i>	
1	30/05/2024	SPOT	Mollusca	Helicidae	<i>Helix aspersa</i>	
1	30/05/2024	SPOT	Diptera	Scathophagidae	<i>Scathophaga stercoraria</i>	
1	30/05/2024	SWEEP	Coleoptera	Carabidae	<i>Loricera pilicornis</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Hemiptera	Lygaeidae	<i>Cymus melanocephalus</i>	
1	30/05/2024	SWEEP	Araneae	Tetragnathidae	<i>Tetragnatha extensa</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Diptera	Syrphidae	<i>Lejogaster splendida</i>	
1	30/05/2024	SWEEP	Mollusca	Physidae	<i>Aplexa hypnorum</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Coleoptera	Scirtidae	<i>Microcara testacea</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Coleoptera	Elateridae	<i>Athous haemorrhoidalis</i>	
1	30/05/2024	SWEEP	Coleoptera	Chrysomelidae	<i>Altica lythri</i>	IUCN-Least Concern (LC)

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ²
1	30/05/2024	SWEEP	Hemiptera	Anthocoridae	<i>Anthocoris nemorum</i>	
1	30/05/2024	SWEEP	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	
1	30/05/2024	SWEEP	Coleoptera	Scraptiidae	<i>Anaspis maculata</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Hemiptera	Miridae	<i>Liocoris tripustulatus</i>	
1	30/05/2024	SWEEP	Diptera	Stratiomyidae	<i>Sargus flavipes</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Coleoptera	Cantharidae	<i>Cantharis cryptica</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Hemiptera	Miridae	<i>Psallus varians</i>	
1	30/05/2024	SWEEP	Hemiptera	Cixiidae	<i>Cixius nervosus</i>	
1	30/05/2024	SWEEP	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	
1	30/05/2024	SWEEP	Diptera	Syrphidae	<i>Episyrphus balteatus</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Coleoptera	Chrysomelidae	<i>Gastrophysa viridula</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Diptera	Scathophagidae	<i>Scathophaga stercoraria</i>	
1	30/05/2024	SWEEP	Coleoptera	Chrysomelidae	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)
1	30/05/2024	HAND SEARCH	Hemiptera	Hydrometridae	<i>Hydrometra stagnorum</i>	IUCN-Least Concern (LC)
1	30/05/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Loricera pilicornis</i>	IUCN-Least Concern (LC)
1	30/05/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Bembidion aeneum</i>	IUCN-Least Concern (LC)
1	30/05/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Bembidion properans</i>	IUCN-Least Concern (LC)
1	30/05/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Pterostichus minor</i>	IUCN-Least Concern (LC)
1	30/05/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Agonum muelleri</i>	IUCN-Least Concern (LC)
1	30/05/2024	HAND SEARCH	Coleoptera	Staphylinidae	<i>Stenus juno</i>	
1	30/05/2024	SWEEP	Coleoptera	Cantharidae	<i>Cantharis cryptica</i>	IUCN-Least Concern (LC)

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ²
1	30/05/2024	SWEEP	Hemiptera	Miridae	<i>Psallus varians</i>	
1	30/05/2024	SWEEP	Coleoptera	Scraptiidae	<i>Anaspis maculata</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Coleoptera	Scraptiidae	<i>Anaspis fasciata</i>	IUCN-Least Concern (LC)
1	30/05/2024	SWEEP	Coleoptera	Scraptiidae	<i>Anaspis regimbarti</i>	IUCN-Least Concern (LC)

A.2 Terrestrial invertebrate contextual data for Site 2

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ³
2	14/09/2023	SPOT	Araneae	Araneidae	<i>Araneus diadematus</i>	IUCN-Least Concern (LC)
2	14/09/2023	SWEEP/BEAT	Araneae	Araneidae	<i>Larinioides cornutus</i>	IUCN-Least Concern (LC)
2	14/09/2023	SWEEP/BEAT	Coleoptera	Aphrophoridae	<i>Philonthus splendens</i>	
2	14/09/2023	SWEEP/BEAT	Coleoptera	Carabidae	<i>Bembidion properans</i>	IUCN-Least Concern (LC)
2	14/09/2023	SPOT	Coleoptera	Chrysomelidae	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)
2	14/09/2023	SWEEP/BEAT	Coleoptera	Chrysomelidae	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)
2	14/09/2023	SWEEP/BEAT	Coleoptera	Chrysomelidae	<i>Cassida rubiginosa</i>	IUCN-Least Concern (LC)

³ Blank cells mean there is no conservation status available for this species.

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ³
2	14/09/2023	SWEEP/BEAT	Coleoptera	Coccinellidae	<i>Anisosticta 19-punctata</i>	
2	14/09/2023	SWEEP/BEAT	Coleoptera	Coccinellidae	<i>Coccinella 7-punctata</i>	
2	14/09/2023	SWEEP/BEAT	Dermaptera	Forficulidae	<i>Forficula auricularia</i>	IUCN-Least Concern (LC)
2	14/09/2023	SPOT	Diptera	Muscidae	<i>Mesembrina meridiana</i>	
2	14/09/2023	SPOT	Hemiptera	Acanthosomatidae	<i>Acanthosoma haemorrhoidale</i>	IUCN-Least Concern (LC)
2	14/09/2023	SWEEP/BEAT	Hemiptera	Anthocoridae	<i>Anthocoris nemorum</i>	
2	14/09/2023	SWEEP/BEAT	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	
2	14/09/2023	SWEEP/BEAT	Hemiptera	Artheneidae	<i>Chilacis typhae</i>	
2	14/09/2023	SWEEP/BEAT	Hemiptera	Cymidae	<i>Cymus melanocephalus</i>	
2	14/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Liocoris tripustulatus</i>	
2	14/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Lygus rugulipennis</i>	
2	14/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Notostira elongata</i>	
2	14/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Pantilius tunicatus</i>	
2	14/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Stenodema calcarata</i>	
2	14/09/2023	SWEEP/BEAT	Hemiptera	Nabidae	<i>Nabis ferus</i>	
2	14/09/2023	SWEEP/BEAT	Hemiptera	Nabidae	<i>Nabis limbatus</i>	
2	14/09/2023	SPOT	Hymenoptera	Apidae	<i>Bombus pascuorum</i>	

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ³
2	14/09/2023	SPOT	Odonata	Aeshnidae	<i>Aeshna grandis</i>	IUCN-Least Concern (LC)
2	14/09/2023	SPOT	Odonata	Aeshnidae	<i>Aeshna juncea</i>	IUCN-Least Concern (LC)
2	14/09/2023	SWEEP/BEAT	Opiliones	Phalangidae	<i>Dicranopalpus ramosus</i>	
2	31/05/2024	SPOT	Hemiptera	Acanthosomatidae	<i>Acanthosoma haemorrhoidale</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Coleoptera	Coccinellidae	<i>Adalia 10-punctata</i>	
2	31/05/2024	SWEEP	Coleoptera	Coccinellidae	<i>Adalia 2-punctata</i>	
2	31/05/2024	SWEEP	Hemiptera	Miridae	<i>Adelphocoris quadripunctatus</i>	
2	31/05/2024	SWEEP	Coleoptera	Chrysomelidae	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)
2	31/05/2024	SWEEP	Coleoptera	Chrysomelidae	<i>Altica lythri</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Coleoptera	Chrysomelidae	<i>Altica lythri</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Coleoptera	Chrysomelidae	<i>Altica lythri</i>	IUCN-Least Concern (LC)
2	31/05/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Amara aenea</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Coleoptera	Scraptiidae	<i>Anaspis maculata</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Hymenoptera	Apidae	<i>Apis mellifera</i>	
2	31/05/2024	SPOT	Lepidoptera	Noctuidae	<i>Autographa gamma</i>	

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ³
2	31/05/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Bembidion aeneum</i>	IUCN-Least Concern (LC)
2	31/05/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Bembidion properans</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Hymenoptera	Apidae	<i>Bombus hortorum</i>	
2	31/05/2024	SPOT	Hymenoptera	Apidae	<i>Bombus hypnorum</i>	
2	31/05/2024	SPOT	Hymenoptera	Apidae	<i>Bombus hypnorum</i>	
2	31/05/2024	SPOT	Hymenoptera	Apidae	<i>Bombus lucorum</i>	
2	31/05/2024	SPOT	Hymenoptera	Apidae	<i>Bombus pascuorum</i>	
2	31/05/2024	SPOT	Hymenoptera	Apidae	<i>Bombus pratorum</i>	
2	31/05/2024	SWEEP	Coleoptera	Chrysomelidae	<i>Cassida rubiginosa</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Coleoptera	Coccinellidae	<i>Coccinella 7-punctata</i>	
2	31/05/2024	SPOT	Odonata	Coenagrionidae	<i>Coenagrion puella</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Odonata	Coenagrionidae	<i>Coenagrion puella</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Coleoptera	Scirtidae	<i>Contacyphon coarctatus</i>	
2	31/05/2024	SWEEP	Hemiptera	Lygaeidae	<i>Cymus melanocephalus</i>	
2	31/05/2024	SWEEP	Hemiptera	Lygaeidae	<i>Cymus melanocephalus</i>	

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ³
2	31/05/2024	SWEEP	Hemiptera	Lygaeidae	<i>Cymus melanocephalus</i>	
2	31/05/2024	SWEEP	Coleoptera	Curculionidae	<i>Dorytomus taeniatus</i>	
2	31/05/2024	SPOT	Diptera	Syrphidae	<i>Episyrphus balteatus</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Coleoptera	Chrysomelidae	<i>Gastrophysa viridula</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Coleoptera	Chrysomelidae	<i>Gastrophysa viridula</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Coleoptera	Chrysomelidae	<i>Gastrophysa viridula</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Diptera	Tabanidae	<i>Haematopota pluvialis</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Coleoptera	Chrysomelinae	<i>Hydrothassa marginella</i>	
2	31/05/2024	SPOT	Odonata	Coenagrionidae	<i>Ischnura elegans</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Odonata	Coenagrionidae	<i>Ischnura elegans</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Odonata	Coenagrionidae	<i>Ischnura elegans</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Diptera	Syrphidae	<i>Lejogaster splendida</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Diptera	Syrphidae	<i>Lejogaster splendida</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Odonata	Libellulidae	<i>Libellula depressa</i>	IUCN-Least Concern (LC)

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ³
2	31/05/2024	SWEEP	Hemiptera	Miridae	<i>Liocoris tripustulatus</i>	
2	31/05/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Loricera pilicornis</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Diptera	Muscidae	<i>Mesembrina meridiana</i>	
2	31/05/2024	SWEEP	Coleoptera	Oedemeridae	<i>Oedemera nobilis</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	
2	31/05/2024	SWEEP	Coleoptera	Curculionidae	<i>Phyllobius glaucus</i>	
2	31/05/2024	SPOT	Coleoptera	Chrysomelidae	<i>Plateumaris sericea</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Coleoptera	Chrysomelidae	<i>Plateumaris sericea</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Coleoptera	Chrysomelidae	<i>Plateumaris sericea</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Coleoptera	Chrysomelidae	<i>Plateumaris sericea</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Coleoptera	Coccinellidae	<i>Propylea 14-punctata</i>	
2	31/05/2024	SPOT	Coleoptera	Coccinellidae	<i>Propylea 14-punctata</i>	
2	31/05/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Pterostichus strenuus</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Diptera	Syrphidae	<i>Pyrophaena granditarsa</i>	

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ³
2	31/05/2024	SPOT	Diptera	Syrphidae	<i>Pyrophaena granditarsa</i>	
2	31/05/2024	HAND SEARCH	Hemiptera	Saldidae	<i>Saldula saltatoria</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Diptera	Scathophagidae	<i>Scathophaga stercoraria</i>	
2	31/05/2024	SPOT	Diptera	Scathophagidae	<i>Scathophaga stercoraria</i>	
2	31/05/2024	HAND SEARCH	Hemiptera	Lygaeidae	<i>Scolopostethus puberulus</i>	
2	31/05/2024	SWEEP	Diptera	Syrphidae	<i>Sphegina verecunda</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Coleoptera	Cryptophagidae	<i>Telmatophilus typhae</i>	
2	31/05/2024	SPOT	Araneae	Tetragnathidae	<i>Tetragnatha extensa</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Araneae	Tetragnathidae	<i>Tetragnatha extensa</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Araneae	Tetragnathidae	<i>Tetragnatha extensa</i>	IUCN-Least Concern (LC)
2	31/05/2024	SPOT	Araneae	Tetragnathidae	<i>Tetragnatha extensa</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Araneae	Tetragnathidae	<i>Tetragnatha extensa</i>	IUCN-Least Concern (LC)
2	31/05/2024	SWEEP	Hemiptera	Tingidae	<i>Tingis ampliata</i>	
2	31/05/2024	SWEEP	Hemiptera	Tingidae	<i>Tingis ampliata</i>	

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ³
2	31/05/2024	SPOT	Hemiptera	Tingidae	<i>Tingis cardui</i>	
2	31/05/2024	SPOT	Araneae	Thomisidae	<i>Xysticus cristatus</i>	IUCN-Least Concern (LC)

A.3 Terrestrial invertebrate data for Site 3

Site number	Date	Sample type	Order	Family	Species	Conservation status ⁴
3	05/06/2024	HAND SEARCH	Coleoptera	Coccinellidae	<i>Coccinella 7-punctata</i>	
3	05/06/2024	HAND SEARCH	Coleoptera	Coccinellidae	<i>Coccinella 11-punctata</i>	
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Bembidion varium</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Paranchus albipes</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Poecilus versicolor</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Saldidae	<i>Salda littoralis</i>	
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Elaphrus riparius</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Bembidion maritimum</i>	NS
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Loricera pilicornis</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Orthoptera	Tetrigidae	<i>Tetrix subulata</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Agonum marginatum</i>	IUCN-Least Concern (LC)

⁴ Blank cells mean there is no conservation status available for this species.

Site number	Date	Sample type	Order	Family	Species	Conservation status ⁴
3	05/06/2024	SPOT	Mollusca	Helicidae	<i>Cepaea nemoralis</i>	
3	05/06/2024	SPOT	Coleoptera	Oedemeridae	<i>Oedemera lurida</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	
3	05/06/2024	SPOT	Coleoptera	Coccinellidae	<i>Adalia bipunctata</i>	
3	05/06/2024	SPOT	Diptera	Syrphidae	<i>Eristalis tenax</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Mollusca	Limacidae	<i>Limax maximus</i>	
3	05/06/2024	SPOT	Hymenoptera	Apidae	<i>Bombus hortorum</i>	
3	05/06/2024	SPOT	Hymenoptera	Andrenidae	<i>Andrena cineraria</i>	
3	05/06/2024	SPOT	Hymenoptera	Apidae	<i>Apis mellifera</i>	
3	05/06/2024	SPOT	Hymenoptera	Apidae	<i>Apis mellifera</i>	
3	05/06/2024	SPOT	Hymenoptera	Apidae	<i>Bombus hortorum</i>	
3	05/06/2024	SPOT	Hymenoptera	Apidae	<i>Bombus pascuorum</i>	
3	05/06/2024	SPOT	Coleoptera	Oedemeridae	<i>Oedemera nobilis</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Lepidoptera	Noctuidae	<i>Autographa gamma</i>	
3	05/06/2024	SPOT	Myriapoda	Julidae	<i>Ommatoiulus sabulosus</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Orthoptera	Conocephalidae	<i>Conocephalus dorsalis</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Coccinellidae	<i>Propylea 14-punctata</i>	
3	05/06/2024	HAND SEARCH	Coleoptera	Coccinellidae	<i>Coccinella 7-punctata</i>	
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Agonum marginatum</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Helophoridae	<i>Helophorus grandis</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Bembidion varium</i>	IUCN-Least Concern (LC)

Site number	Date	Sample type	Order	Family	Species	Conservation status ⁴
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Bembidion aeneum</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Bembidion guttula</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Bembidion properans</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Coleoptera	Coccinellidae	<i>Coccidula rufa</i>	
3	05/06/2024	SPOT	Diptera	Syrphidae	<i>Helophilus pendulus</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Coleoptera	Curculionidae	<i>Sitona lineatus</i>	
3	05/06/2024	SPOT	Coleoptera	Carabidae	<i>Pterostichus madidus</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Dermaptera	Forficulidae	<i>Forficula auricularia</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Coleoptera	Carabidae	<i>Poecilus cupreus</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Coleoptera	Carabidae	<i>Amara familiaris</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Diptera	Tabanidae	<i>Haematopota pluvialis</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Coleoptera	Staphylinidae	<i>Drusilla canaliculata</i>	
3	05/06/2024	SPOT	Coleoptera	Carabidae	<i>Demetrias atricapillus</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Araneae	Thomisidae	<i>Xysticus cristatus</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Hemiptera	Saldidae	<i>Salda littoralis</i>	IUCN-Least Concern (LC), NS
3	05/06/2024	SPOT	Coleoptera	Elateridae	<i>Agriotes lineatus</i>	
3	05/06/2024	SPOT	Coleoptera	Cantharidae	<i>Cantharis nigricans</i>	IUCN-Least Concern (LC)
3	05/06/2024	SPOT	Coleoptera	Carabidae	<i>Bembidion tetracolum</i>	IUCN-Least Concern (LC)
3	05/06/2024	HAND SEARCH	Hemiptera	Saldidae	<i>Saldula palustris</i>	IUCN-Least Concern (LC), NS
3	05/06/2024	HAND SEARCH	Coleoptera	Carabidae	<i>Amara plebeja</i>	IUCN-Least Concern (LC)

Site number	Date	Sample type	Order	Family	Species	Conservation status ⁴
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Araneae	Thomisidae	<i>Xysticus cristatus</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Cantharidae	<i>Cantharis nigricans</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Agonum marginatum</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Amara familiaris</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Amara plebeja</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Bembidion aeneum</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Bembidion guttula</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Bembidion maritimum</i>	IUCN-Least Concern (LC); Nationally Scarce
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Bembidion properans</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Bembidion tetracolum</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Bembidion varium</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Demetrias atricapillus</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Elaphrus riparius</i>	IUCN-Least Concern (LC)

Site number	Date	Sample type	Order	Family	Species	Conservation status ⁴
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Loricera pilicornis</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Paranchus albipes</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Poecilus cupreus</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Poecilus versicolor</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Carabidae	<i>Pterostichus madidus</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Coccinellidae	<i>Adalia bipunctata</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Coccinellidae	<i>Coccidula rufa</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Coccinellidae	<i>Coccinella septempunctata</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Coccinellidae	<i>Coccinella undecimpunctata</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Coccinellidae	<i>Propylea quattuordecimpunctata</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Curculionidae	<i>Sitona lineatus</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Elateridae	<i>Agriotes lineatus</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Helophoridae	<i>Helophorus grandis</i>	IUCN-Least Concern (LC)

Site number	Date	Sample type	Order	Family	Species	Conservation status ⁴
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Oedemeridae	<i>Oedemera lurida</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Oedemeridae	<i>Oedemera nobilis</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Coleoptera	Staphylinidae	<i>Drusilla canaliculata</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Dermaptera	Forficulidae	<i>Forficula auricularia</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Diptera	Syrphidae	<i>Eristalis tenax</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Diptera	Syrphidae	<i>Helophilus pendulus</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Diptera	Tabanidae	<i>Haematopota pluvialis</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Hemiptera	Saldidae	<i>Salda littoralis</i>	IUCN-Least Concern (LC); Nationally Scarce
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Hemiptera	Saldidae	<i>Saldula palustris</i>	IUCN-Least Concern (LC); Nationally Scarce
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Hymenoptera	Andrenidae	<i>Andrena cineraria</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Hymenoptera	Apidae	<i>Apis mellifera</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Hymenoptera	Apidae	<i>Bombus hortorum</i>	

Site number	Date	Sample type	Order	Family	Species	Conservation status ⁴
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Hymenoptera	Apidae	<i>Bombus pascuorum</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Julida	Julidae	<i>Ommatoiulus sabulosus</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Lepidoptera	Noctuidae	<i>Autographa gamma</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Orthoptera	Conocephalidae	<i>Conocephalus dorsalis</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Orthoptera	Tetrigidae	<i>Tetrix subulata</i>	IUCN-Least Concern (LC)
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Pulmonata	Helicidae	<i>Cepaea nemoralis</i>	
3	20/08/2024	HAND SEARCH/ SPOT/ NET	Pulmonata	Limacidae	<i>Limax maximus</i>	

A.4 Terrestrial invertebrate contextual data for Site 4

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ⁵
4	12/09/2023	SPOT	Coleoptera	Staphylinidae	<i>Ocypus olens</i>	
4	12/09/2023	SPOT	Lepidoptera	Lycaenidae	<i>Lycaena phlaeas</i>	IUCN-Least Concern (LC)
4	12/09/2023	SPOT	Lepidoptera	Noctuidae	<i>Autographa gamma</i>	
4	12/09/2023	SPOT	Mollusca	Helicidae	<i>Cornu aspersum</i>	

⁵ Blank cells mean there is no conservation status available for this species.

A.5 Terrestrial invertebrate contextual data for Site 5

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ⁶
5	12/09/2023	SPOT	Coleoptera	Chrysomelidae	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)
5	12/09/2023	SPOT	Diptera	Syrphidae	<i>Helophilus hybridus</i>	IUCN-Least Concern (LC)

A.6 Terrestrial invertebrate contextual data for Site 6

Site number	Date	Sample Type	Order	Family	Species	Conservation Status
6	12/09/2023	No access due to cattle				

A.7 Terrestrial invertebrate contextual data for Site 7

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ⁷
7	11/09/2023	SPOT	Araneae	Araneidae	<i>Araneus diadematus</i>	IUCN-Least Concern (LC)
7	11/09/2023	SPOT	Coleoptera	Chrysomelidae	<i>Altica lythri</i>	IUCN-Least Concern (LC)
7	11/09/2023	SPOT	Coleoptera	Coccinellidae	<i>Coccinella 7-punctata</i>	

⁶ Blank cells mean there is no conservation status available for this species.

⁷ Blank cells mean there is no conservation status available for this species.

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ⁷
7	11/09/2023	SPOT	Dermaptera	Forficulidae	<i>Forficula auricularia</i>	IUCN-Least Concern (LC)
7	11/09/2023	SPOT	Diptera	Muscidae	<i>Mesembrina meridiana</i>	
7	11/09/2023	SPOT	Diptera	Scathophagidae	<i>Scathophaga stercoraria</i>	
7	11/09/2023	SWEEP	Diptera	Syrphidae	<i>Eristalis tenax</i>	IUCN-Least Concern (LC)
7	11/09/2023	SPOT	Diptera	Syrphidae	<i>Syritta pipiens</i>	IUCN-Least Concern (LC)
7	11/09/2023	SPOT	Hemiptera	Acanthosomatidae	<i>Acanthosoma haemorrhoidale</i>	IUCN-Least Concern (LC)
7	11/09/2023	SPOT	Hemiptera	Aphrophoridae	<i>Neophilaenus lineatus</i>	
7	11/09/2023	SPOT	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	
7	11/09/2023	SPOT	Hemiptera	Blissidae	<i>Ischnodemus sabuleti</i>	
7	11/09/2023	SWEEP	Hemiptera	Cicadellidae	<i>Aphrodes makarovi</i>	
7	11/09/2023	SPOT	Hemiptera	Delphacidae	<i>Stenocranus major</i>	
7	11/09/2023	SWEEP	Hemiptera	Miridae	<i>Lygus rugulipennis</i>	

A.8 Terrestrial invertebrate contextual data for Site 8

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ⁸
8	14/09/2023	SPOT	Araneae	Araneidae	<i>Araneus diadematus</i>	IUCN-Least Concern (LC)
8	14/09/2023	SPOT	Araneae	Araneidae	<i>Larinioides cornutus</i>	IUCN-Least Concern (LC)
8	14/09/2023	SPOT	Coleoptera	Coccinellidae	<i>Chilocorus renipustulatus</i>	
8	14/09/2023	SPOT	Coleoptera	Coccinellidae	<i>Coccinella 7-punctata</i>	
8	14/09/2023	SPOT	Coleoptera	Coccinellidae	<i>Harmonia axyridis</i>	
8	14/09/2023	SPOT	Diptera	Muscidae	<i>Mesembrina meridiana</i>	
8	14/09/2023	SPOT	Diptera	Syrphidae	<i>Episyrphus balteatus</i>	IUCN-Least Concern (LC)
8	14/09/2023	SPOT	Diptera	Syrphidae	<i>Eristalis tenax</i>	IUCN-Least Concern (LC)
8	14/09/2023	SPOT	Diptera	Syrphidae	<i>Helophilus hybridus</i>	IUCN-Least Concern (LC)
8	14/09/2023	SPOT	Hemiptera	Miridae	<i>Liocoris tripustulatus</i>	
8	14/09/2023	SPOT	Hemiptera	Miridae	<i>Lygus rugulipennis</i>	
8	14/09/2023	SPOT	Hemiptera	Nabidae	<i>Nabis ferus</i>	
8	14/09/2023	SPOT	Hymenoptera	Apidae	<i>Apis mellifera</i>	

⁸ Blank cells mean there is no conservation status available for this species.

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ⁸
8	14/09/2023	SPOT	Hymenoptera	Apidae	<i>Bombus hortorum</i>	
8	14/09/2023	SPOT	Hymenoptera	Apidae	<i>Bombus pascuorum</i>	
8	14/09/2023	SPOT	Lepidoptera	Noctuidae	<i>Autographa gamma</i>	
8	14/09/2023	SPOT	Lepidoptera	Nymphalidae	<i>Pararge aegeria</i>	IUCN-Least Concern (LC)
8	14/09/2023	SPOT	Lepidoptera	Nymphalidae	<i>Polygonia c-album</i>	IUCN-Least Concern (LC)
8	14/09/2023	SPOT	Lepidoptera	Nymphalidae	<i>Vanessa atalanta</i>	IUCN-Least Concern (LC)
8	14/09/2023	SPOT	Lepidoptera	Nymphalidae	<i>Vanessa cardui</i>	IUCN-Least Concern (LC)
8	14/09/2023	SPOT	Mollusca	Helicidae	<i>Cepaea nemoralis</i>	
8	14/09/2023	SPOT	Mollusca	Helicidae	<i>Cornu aspersum</i>	
8	14/09/2023	SPOT	Odonata	Aeshnidae	<i>Aeshna juncea</i>	IUCN-Least Concern (LC)
8	14/09/2023	SPOT	Orthoptera	Acrididae	<i>Omocestus viridulus</i>	IUCN-Least Concern (LC)

A.9 Terrestrial invertebrate contextual data for Site 9

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ⁹
9	13/09/2023	SWEEP	Araneae	Araneidae	<i>Larinioides cornutus</i>	IUCN-Least Concern (LC)
9	13/09/2023	SWEEP	Coleoptera	Chrysomelidae	<i>Cassida rubiginosa</i>	IUCN-Least Concern (LC)
9	13/09/2023	SWEEP	Coleoptera	Coccinellidae	<i>Coccinella 7-punctata</i>	
9	13/09/2023	SWEEP	Coleoptera	Coccinellidae	<i>Harmonia axyridis</i>	
9	13/09/2023	SPOT	Dermaptera	Forficulidae	<i>Forficula auricularia</i>	IUCN-Least Concern (LC)
9	13/09/2023	SWEEP	Dermaptera	Forficulidae	<i>Forficula auricularia</i>	IUCN-Least Concern (LC)
9	13/09/2023	SWEEP	Diptera	Scathophagidae	<i>Scathophaga stercoraria</i>	
9	13/09/2023	SWEEP	Diptera	Syrphidae	<i>Platycheirus granditarsus</i>	IUCN-Least Concern (LC)
9	13/09/2023	SPOT	Hemiptera	Acanthosomatidae	<i>Acanthosoma haemorrhoidale</i>	IUCN-Least Concern (LC)
9	13/09/2023	SPOT	Hemiptera	Aphrophoridae	<i>Neophilaenus lineatus</i>	
9	13/09/2023	SPOT	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	
9	13/09/2023	SWEEP	Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	

⁹ Blank cells mean there is no conservation status available for this species.

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ⁹
9	13/09/2023	SWEEP	Hemiptera	Cicadellidae	<i>Eupteryx aurata</i>	
9	13/09/2023	SWEEP	Hemiptera	Cicadellidae	<i>Eurhadina concinna</i>	
9	13/09/2023	SWEEP	Hemiptera	Cicadellidae	<i>Euscelis incisus</i>	
9	13/09/2023	SWEEP	Hemiptera	Miridae	<i>Lygus rugulipennis</i>	
9	13/09/2023	SWEEP	Hemiptera	Miridae	<i>Lygus rugulipennis</i>	
9	13/09/2023	SPOT	Hymenoptera	Apidae	<i>Bombus pascuorum</i>	
9	13/09/2023	SPOT	Lepidoptera	Nymphalidae	<i>Aglais urticae</i>	IUCN-Least Concern (LC)
9	13/09/2023	SPOT	Mollusca	Coccinellidae	<i>Coccinella 7-punctata</i>	
9	13/09/2023	SPOT	Mollusca	Helicidae	<i>Cepaea nemoralis</i>	

A.10 Terrestrial invertebrate contextual data for Site 10

Site number	Date	Sample Type	Order	Family	Species	Conservation Status	
10	13/09/2023	Access via a PRow only. Scoped out.					

A.11 Terrestrial invertebrate contextual data for Site 11

Site number	Date	Sample Type	Order	Family	Species	Conservation Status
11	14/09/2023	No access due to cattle				

A.12 Terrestrial invertebrate contextual data for Site 12

Site number	Date	Sample Type	Order	Family	Species	Conservation Status
12	13/09/2023	No access due to cattle – incidental recordings				
12	13/09/2023	SPOT	Coleoptera	Carabidae	<i>Pterostichus madidus</i>	IUCN-Least Concern (LC)
12	13/09/2023	SPOT	Lepidoptera	Nymphalidae	<i>Vanessa atalanta</i>	IUCN-Least Concern (LC)

A.13 Terrestrial invertebrate contextual data for Site 13

Site number	Date	Sample Type	Order	Family	Species	Conservation Status
13	13/09/2023	No access due to cattle				

A.14 Terrestrial invertebrate contextual data for Site 14

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ¹⁰
14	11/09/2023	SWEEP/BEAT	Araneae	Araneidae	<i>Araneus diadematus</i>	IUCN-Least Concern (LC)
14	11/09/2023	SWEEP/BEAT	Araneae	Araneidae	<i>Araneus quadratus</i>	IUCN-Least Concern (LC)
14	11/09/2023	SWEEP/BEAT	Araneae	Araneidae	<i>Larinioides cornutus</i>	IUCN-Least Concern (LC)
14	11/09/2023	SWEEP/BEAT	Coleoptera	Chrysomelidae	<i>Altica lythri</i>	IUCN-Least Concern (LC)
14	11/09/2023	SWEEP/BEAT	Coleoptera	Chrysomelidae	<i>Lochmaea crataegi</i>	IUCN-Least Concern (LC)
14	11/09/2023	SWEEP/BEAT	Coleoptera	Coccinellidae	<i>Coccinella 7-punctata</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Acanthosomatidae	<i>Acanthosoma haemorrhoidale</i>	IUCN-Least Concern (LC)
14	11/09/2023	SWEEP/BEAT	Hemiptera	Anthocoridae	<i>Anthocoris nemorum</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Anthocoridae	<i>Orius vicinus</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Aphrophoridae	<i>Neophilaenus lineatus</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Blissidae	<i>Ischnodemus sabuleti</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Cicadellidae	<i>Aphrodes makarovi</i>	

¹⁰ Blank cells mean there is no conservation status available for this species.

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ¹⁰
14	11/09/2023	SWEEP/BEAT	Hemiptera	Cicadellidae	<i>Edwardsiana crataegi</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Delphacidae	<i>Stenocranus major</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Liocoris tripustulatus</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Notostira elongata</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Miridae	<i>Stenodema calcarata</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Nabidae	<i>Nabis ferus</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Nabidae	<i>Nabis limbatus</i>	
14	11/09/2023	SWEEP/BEAT	Hemiptera	Pentatomidae	<i>Troilus luridus</i>	IUCN-Least Concern (LC)
14	11/09/2023	SWEEP/BEAT	Mollusca	Helicidae	<i>Cepaea nemoralis</i>	
14	11/09/2023	SWEEP/BEAT	Opiliones	Phalangidae	<i>Dicranopalpus ramosus</i>	

A.15 Terrestrial invertebrate contextual data for Site 15

Site number	Date	Sample Type	Order	Family	Species	Conservation Status ¹¹
15	12/09/2023	SPOT	Araneae	Araneidae	<i>Araneus diadematus</i>	IUCN-Least Concern (LC)
15	12/09/2023	SPOT	Coleoptera	Chrysomelidae	<i>Agelastica alni</i>	Data Deficient (DD); Nationally Rare (NR)
15	12/09/2023	SPOT	Coleoptera	Chrysomelidae	<i>Gastrophysa viridula</i>	IUCN-Least Concern (LC)
15	12/09/2023	SPOT	Diptera	Syrphidae	<i>Episyrphus balteatus</i>	IUCN-Least Concern (LC)
15	12/09/2023	SPOT	Hemiptera	Acanthosomatidae	<i>Acanthosoma haemorrhoidale</i>	IUCN-Least Concern (LC)
15	12/09/2023	SPOT	Hemiptera	Miridae	<i>Dicyphus stachydis</i>	
15	12/09/2023	SPOT	Hymenoptera	Apidae	<i>Apis mellifera</i>	
15	12/09/2023	SPOT	Lepidoptera	Pieridae	<i>Pieris rapae</i>	IUCN-Least Concern (LC)
15	12/09/2023	SPOT	Opiliones	Phalangiidae	<i>Leiobunum rotundum</i>	

¹¹ Blank cells mean there is no conservation status available for this species.

Appendix B: Invertebrate conservation criteria

Certain species of invertebrate are rare or scarce in Great Britain, and until relatively recently an assessment of rarity was based on occupancy at a 10 km square level (JNCC, 2019). More recent assessments, however, are based on the degree of threat and vulnerability to extinction (International Union for Conservation of Nature (IUCN), 2001). Due to difficulties with assessing population sizes of invertebrates and specific evidence of decline, the majority of recent invertebrate species status reviews (e.g. Foster, 2010) have focused on Area of Occupancy to assess status within Great Britain. Only some invertebrate groups have been reassessed under IUCN (2001) criteria, and so until such time as reassessment is complete both systems are currently in use. The category definitions currently in use are shown in **Table B.1** below.

B.1 Invertebrate conservation criteria, abbreviations and definitions

Criteria	Abbreviation	Category	Definition
Pre IUCN (2001)	N	Notable/Nationally Scarce	Species which are not in a Red Data Book (RDB) category but occurring in only 100 10 km squares in Great Britain.
Pre IUCN (2001)	Nb	Notable B/Nationally Scarce	Species which are not in an RDB category but occurring in between 31 and 100 10 km squares in Great Britain.
Pre IUCN (2001)	Na	Notable A/Nationally Scarce	Species which are not in an RDB category but occurring in less than 30 10 km squares in Great Britain.
Pre IUCN (2001)	RDBK	Red Data Book K: Insufficiently Known	Species suspected of falling within a RDB category but lacking sufficient information to be certain. Species may be cryptic, newly discovered, under recorded, difficult to identify or be present in poorly worked habitats. Species may be native or have been accidentally introduced.
Pre IUCN (2001)	RDB3	Red Data Book 3: Rare	Species with small populations not RDB2 or RDB1, with restricted geographic or habitat occurrence in Great Britain or thinly scattered across range.
Pre IUCN (2001)	RDB2	Red Data Book 2: Vulnerable	Species which are rare and are declining or in vulnerable habitats.

Criteria	Abbreviation	Category	Definition
Pre IUCN (2001)	RDB1	Red Data Book 1: Endangered	Species restricted to a single Site within one 10 km square in Great Britain, or only occurring in vulnerable habitats with evidence of a rapid and continuous decline or potentially extinct but have been recorded within last 100 years.
Pre IUCN (2001)	RDB-App	Red Data Book- Appendix: Extinct	Species which are considered to be extinct in Great Britain.
IUCN (2001)	NS	Nationally Scarce	A native species recorded from between 16 and 100 hectares of the Ordnance Survey national grid in Great Britain since 1990, and there is reasonable confidence that exhaustive recording would not find them in more than 100 hectares, and it occurs as a breeding species within each of these hectares. Not a category of threat. Recent reassessments of some poorly known groups have included pNS to denote provisional status.
IUCN (2001)	NR	Nationally Rare	A native species recorded from between 1 and 15 hectares of the Ordnance Survey national grid in Great Britain since 1990, and there is reasonable confidence that exhaustive recording would not find them in more than 15 hectares, and occurring as a breeding species within each of these hectares. This category includes species that are possibly extinct. Not a category of threat.
IUCN (2001)	NT	Near Threatened	A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future. Recent reassessments of some poorly known groups have included pNT to denote provisional status.
IUCN (2001)	VU	Vulnerable	Area of Occupancy <2,000 km ² and two of the following: <ul style="list-style-type: none"> severely fragmented or no more than 10 locations; continuing decline; extreme fluctuations. Recorded from <2,000 km ² is equivalent to being present in five to ten hectares from 1980 onwards or from a later specified date if the species has been subject to a special survey of its status since 1980.
IUCN (2001)	EN	Endangered	Area of occupancy <500 km ² and two of the following:

Criteria	Abbreviation	Category	Definition
			<ul style="list-style-type: none"> severely fragmented or no more than 5 locations; continuing decline; extreme fluctuations. <p>Recorded from <500 km² is equivalent to being recorded in at least two locations and up to five hectares from 1980 onwards or from a later specified date if the species has been subject to a special survey of its status since 1980.</p>
IUCN (2001)	CR	Critically Endangered	<p>Area of occupancy <10 km² and two of the following:</p> <ul style="list-style-type: none"> severely fragmented or only a single location; continuing decline; extreme fluctuations. <p>Recorded from <10 km² is equivalent to being recorded at a single location from 1980 onwards or from a later specified date if the species has been subject to a special survey of its status since 1980.</p>