Volume 5 : Appendix 11.2 - Habitat and Vegetation Survey Report

February 2026 – Additional Information

CONTENTS

LIST OF ABBREVIATIONS

AWI: Ancient Woodland Index

DAFOR: D = Dominant (51-100%), A = Abundant (31-50%), F = Frequent (16-30%), O = Occasional (6-15%) and R = Rare (1-5%)

EcIA: Ecological Impact Assessment

EIA: Environmental Impact Assessment

EIAR: Environmental Impact Assessment Report

ESA: Ecological Survey Area

GIS: Geographical Information System

GWDTE: Ground Water Dependent Terrestrial Ecosystem

LBAP: Local Biodiversity Action Plan

LEPO: Long-Established Woodland (of plantation origin)

NVC: National Vegetation Classification

OHL: Overhead Line

SBL: Scottish Biodiversity List

SEPA: Scottish Environment Protection Agency

SSSI: Site of Special Scientific Interest

UK Hab: UK Habitat Classification

1 INTRODUCTION

1.1 The Proposals

1.1.1 This appendix presents the methods and results of the habitat and vegetation surveys undertaken to inform the Ecological Impact Assessment (EcIA) of the Kintore to Tealing 400 kV Overhead Line (OHL) Connection. It should be read in conjunction with **Volume 1, Chapter 3: Project Description** of the EIAR for full details of the Proposed Development, and **Volume 2, Chapter 11: Ecology** for an assessment of the effects of the Proposed Development upon Ecology.

1.2 Supporting Documents

1.2.1 This appendix supports the EcIA in addition to the following appendices (**Volume 5** in the EIAR):

- **Appendix 11.1: Desk Study and Legal/Policy Context**;
- **Appendix 11.3: Protected Species Survey Report**;
- **Appendix 11.4: Bat Survey Report**; and
- **Appendix 11.5: Outline Biodiversity Enhancement Plan**.

1.2.2 **Appendix 11.6: Confidential Protected Species Survey Report** in **Volume 6** of the EIAR also supports the EcIA in addition to the aforementioned appendices.

1.2.3 This appendix is supported by the following figures (**Volume 3** in the EIAR):

- **Figures 11.1.1** to **11.1.23: The Proposed Development and Ecology Survey Area**;
- **Figures 11.3.1** to **11.3.38: Habitat Survey Results**;
- **Figures 11.4.1** to **11.4.23: National Vegetation Classification Survey Results**; and
- **Figures 11.5.1** to **11.5.11: Areas of Guidance-Stated Potential Groundwater Dependency**.

1.2.4 In addition, images from the confidential protected species surveys are provided in **Annex 11.2.1: Habitat and Vegetation Survey Photographs**.

1.3 Requirement for the Report

1.3.1 LUC was commissioned by the Applicant to undertake habitat and vegetation surveys to aid the design process, to inform an assessment of the nature and condition of the habitats present, and to determine the presence of habitats of conservation concern within the Ecological Survey Area (ESA).

1.4 Terminology and Survey Area

1.4.1 The following terminology will be used throughout this report:

- **Proposed Development:** Defined as the infrastructure including towers, overhead line (OHL) conductors, access tracks, and temporary working areas within the Limit of Deviation (LOD) (**Volume 3, Figures 3.1.1 to 3.1.29: Proposed Development for which Section 37 consent (*Electricity Act, 1989*) is sought**; see **Volume 1, Chapter 3: Project Description**).
- **Proposed Alignment**: Defined as the centreline of the OHL (see **Volume 3, Figure 1.1: Overview of the Proposed Development**).
- **Limit of Deviation (LOD)**: The area either side of the Proposed Alignment and ancillary works within which micrositing may take place in accordance with the conditions of the Section 37 Consent.
- **Ecology Survey Area (ESA)**: The LOD of the Proposed Development, plus relevant buffers (up to 250 m from the LOD, with the exception of access tracks, tie-ins and tie backs for which a buffer of up to 50 m from the associated LOD was applied), in which all ecology surveys were undertaken in line with good practice guidelines for all ecological features surveyed (see **Volume 3, Figures 11.1.1** to **11.1.23: The Proposed Development and Ecology Survey Area**).
- **Section**: To aid the reader in comprehension of the geographic spread of the ecology baseline data and assessment, the Proposed Development has been divided into six sections (as outlined below, defined fully in **Volume 1, Chapter 3: Project Description** and shown on all figures associated with this chapter);

- Section A: Emmock 400 kV substation to Forfar, Towers S206 to S163;
- Section B: Forfar to Brechin, Towers S162 to S106;
- Section C: Brechin to Laurencekirk, Towers S105 to S52;
- Section D: Laurencekirk to Hurlie 400 kV substation, Towers S51 to S1;
- Section E: Hurlie 400 kV substation to River Dee, Towers N96 to N61; and
- Section F: North of the River Dee to Kintore Substation, Towers N60 to N1.

2 METHODS

2.1 Scope

Desk Study

2.1.1 A desk study was undertaken to obtain historical ecological information relating to the ESA and the surrounding habitats to identify any known sensitive habitats. An account of the methods adopted, and findings, is provided in **Volume 5, Appendix 11.1: Desk Study and Legal/Policy Context** which also sets out the legislative provisions afforded to protected habitats.

Habitats

2.1.2 A habitat survey was conducted within the ESA as described below.

2.2 Field Survey

Overview

2.2.1 Standardised vernacular names, followed by the scientific name upon first use (italicised within the text), are used for vascular plants (graminoids, herbs and shrubs). Scientific names are used for the moss, liverwort and lichen species because, although vernacular names are now in existence, they are not in general usage.

2.2.2 Surveyors classified habitats present within the ESA according to the UK Hab classification system[1] from June to October 2023, April to October 2024, and December 2024 and January 2025 (see **Section 2.3: Constraints and Limitations**). Invasive non-native plant species were recorded where found. Surveys were completed by experienced field ecologists, in seasons and weather conditions appropriate to the sensitivity of the habitat types.

2.2.3 The methods are outlined below. All survey data was collected on Geographical Information System (GIS)-enabled field tablets to increase accuracy and facilitate robust interpretation. Where field evidence was recorded, photographs were taken. Photographs can be found within **Annex 11.2.1: Habitat and Vegetation Survey Photographs** of this appendix.

UK Habitat Classification System

2.2.4 The habitat survey was undertaken, following standard methods[1], of all habitats within the ESA, by experienced ecologists. During the survey, field surveyors walked across all parts of the ESA to map the habitat types and their boundaries, noting sufficient species indicators to accurately classify habitat types within each mapped area using the DAFOR[2] scale, and photographing habitats to aid habitat classification.

2.2.5 Where relevant, a note was made of the categorisation of woodlands listed on the Ancient Woodland Inventory (AWI)[3]. Woodlands are classified as Ancient Woodland (of semi-natural origin), Long-Established of Plantation Origin (LEPO), or Other (on Roy maps).

2.2.6 The UK Habitat classification system provides a means to classify all habitat types using a primary habitat code with five hierarchical levels of increasing detail. The survey results in a primary habitat code of up to four alternating letters and numbers. One primary habitat code is used for each mapped area, with up to six secondary habitat codes added where there is a requirement to capture additional information.

2.2.7 A habitat condition assessment was also made of each habitat type using the relevant Habitat Condition Sheets published by Natural England[4].

[1] UK Hab, 2020. UK Habitat Classification Version 1.1. [Online] Available at: https://ukhab.org/.
[2] DAFOR scale: D = Dominant (51-100%), A = Abundant (31-50%), F = Frequent (16-30%), O = Occasional (6-15%) and R = Rare (1-5%).
[3] NatureScot, n.d. A *guide to understanding the Scottish Ancient Woodland Inventory (AWI).* [Online] Available at: https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi [Accessed February 2025].
[4] Panks, S. et al, 2022. *Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide*. Natural England.

2.2.8 This habitat classification system was used across the ESA to identify the potential presence of habitats of conservation concern, ie Annex 1 habitats[5], habitats listed on the Scottish Biodiversity List (SBL)[6] or Local Biodiversity Action Plan (LBAP)[7], priority peatland[8], and potential Groundwater Dependent Terrestrial Ecosystems (GWDTEs)[9].

2.2.9 The UK Hab classification system was used at the request of the Applicant. This is a relatively new classification system that is being increasingly used across England; its use in Scotland is nascent and the method is understood to be less well-aligned with Scottish nature conservation policy nomenclature. However, the SSEN Transmission Biodiversity Project Toolkit is tailored to the use of UK Hab, and is designed to capture habitats of conservation concern using this system. Resources, such as a detailed field guide, are available for surveyors, and the survey team undertook UK Hab training prior to conducting surveys. Where potential habitats of conservation concern were encountered, the more detailed National Vegetation Classification (NVC) system was used in addition to ensure accurate identification of plant communities and priority habitats.

National Vegetation Classification (NVC)

2.2.10 All habitats identified in the field as being of conservation concern during the UK Hab survey were subject to NVC survey. Data collected in the field was assessed and NVC communities and sub-communities were assigned where appropriate to each habitat. NVC survey was completed following best practice guidelines[10] to map habitats based on the characteristics of the vegetation. Structure, condition and species composition were recorded including detailed notes on the species present and abundance within stands of vegetation. NVC ratios were collected to record the abundance of each NVC community within the land parcels.

Ground Water Dependent Terrestrial Ecosystems (GWDTEs)

2.2.11 GWDTEs are defined by Scottish Environmental Protection Agency (SEPA)[9] and are considered important indicators of sensitive groundwater movement. Potential GWDTEs are identified by their NVC code, which also determines, to an extent, their likely dependence on groundwater.

2.2.12 Where potential GWDTEs were identified and were not obviously surface or rainwater fed (eg marshy grassland on watershed slopes and ombrogenous bog systems) they were subject to detailed botanical surveys using NVC methods. **Table 11.2.1: GWDTE Decision Tool** below sets out a decision tool that was used to establish the level of dependency of each community.

2.2.13 True GWDTEs are then determined as part of a hydrological assessment, as defined in **Volume 2, Chapter 13: Hydrology, Hydrogeology, Geology and Soils**.

[5] As defined by the *Habitats Directive (Council Directive 92/43/EEC)*, adopted in 1992. [Online] Available at: https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive_en.
[6] NatureScot, 2022. *Scottish Biodiversity List*. Available online: https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop15/scottish-biodiversity-list.
[7] NESBiP, 2019. *Important Habitats for Biodiversity – our Local Biodiversity Action Plan.* [Online] Available at: https://www.nesbiodiversity.org.uk/biodiversity-information-for-developers/important-habitats-for-biodiversity-in-the-north-east-of-scotland/.
[8] NatureScot, 2023. *Advising on peatland, carbon-rich soils and priority peatland habitats in development management.* [Online] Available at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management.
[9] SEPA, 2024. *Land Use Planning System SEPA. Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems*. [Online] Available at: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.sepa.org.uk%2Fmedia%2Fi2cnr03k%2Fguidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems.docx&wdOrigin=BROWSELINK
[10] Rodwell, J. S, 2006. *NVC User's Handbook*, Peterborough. JNCC. [Online] Available at: https://data.jncc.gov.uk/data/a407ebfc-2859-49cf-9710-1bde9c8e28c7/JNCC-NVC-UsersHandbook-2006.pdf.

Table 11.2.1: GWDTE Decision Tool

Criteria	Yes	No
A. Is the GWDTE vegetation evidently influenced by groundwater (i.e base-enriched (M10, M11, M37 and/or M38) and/or discharging from an evident point source such as a spring head (M31, M32, M33)):		
If the answer to A is 'Yes' then field assessment ends at this stage and the GWDTE is treated as 'high', as per the guidance. If 'No', continue to B.		
B. Is the GWDTE polygon associated with an evident surface water feature? Ie is the vegetation located within one of the following topographic locations:		
Watershed/ridge		
Watercourse		
Floodplain		
Ponding location, pond, loch, etc. (localised depression)		
Surface water conveyance (drain, gully, rill, etc.)		
If the answer to B is 'Yes' then the GWDTE polygon is no more than 'Moderate' and very likely to be 'low'. Additional floristic and environmental data should be collected, including photographs to allow for further, desk-based determination of the groundwater dependency. If 'No', continue to C.		
C. Is the GWDTE polygon associated with an ombrogenous system? ie with blanket bog or wet heath habitat. This is especially relevant to M6 and M25:		
Presence/persistence of distinctive bog habitat, species and/or associations.		
Deep peat not confined to depressions/valleys (>0.5 m visible in drains or hagged areas).		
If the answer to C is 'Yes' then the GWDTE is no more than 'Moderate' and very likely to be 'low'. Additional floristic and environmental data should be collected, including photographs to allow for further, desk-based determination of the groundwater dependency.		

2.3 Constraints and Limitations

2.3.1 The majority of surveys were completed during the optimal survey season for habitat and vegetation studies. Some limited additional survey was undertaken in December 2024 and January 2025. This additional survey targeted some minor data gaps in areas dominated by farmland and only limited extents of potentially sensitive habitats. During the extensive survey period, weather conditions were variable, although optimal conditions predominated during the vegetation survey seasons of 2023 and 2024. Given the vast majority of data were collected during the optimal season and weather conditions, and particularly with regards potential habitats of conservation concern, the data gathered are considered robust for the purposes of informing the EIAR.

2.3.2 The timeframe in which a survey is undertaken provides a snapshot of the vegetation assemblages present within the survey area. While surveys provide an overview of the habitats and species present, they cannot be used to determine long-term trends in habitat extents or species populations. Ecological surveys are limited by factors which affect the presence of floral species, such as season and recent weather conditions. Evidence of species is not always discovered during the survey. This does not mean that a species is absent.

2.3.3 Habitats of conservation concern can be identified based on the NVC community, without requiring additional information on sub-community. As such, where vegetation communities were not classified to NVC sub-community level, this is not considered to constrain the assessment.

2.3.4 Surveys were undertaken where access was available. Where there were challenges to arranging access with landowners, aerial imagery was used to assess the potential for habitats of conservation concern to be present. Areas of potential sensitivity were then prioritised for further negotiation regarding access, with a particular focus on possible habitats of conservation concern that may be directly impacted by the Proposed Development. In the majority of instances, this ensured that habitats of potential sensitivity were accessed and surveyed. There were a limited number of locations for which access could not be arranged. In such instances, survey was undertaken from adjacent land, including the use of binoculars from neighbouring landholdings and public roads; a conservative assessment was then made of the likely sensitivity of habitats present, with this information used to inform the Proposed Development.

2.3.5 On balance, the limitations detailed above are not considered to materially affect the conclusions of this report, as a high level of detail has been collected regarding habitats and plant communities throughout the Proposed Development.

3 BASELINE CONDITIONS

3.1 Desk Study

3.1.1 A desk study was undertaken to inform habitat and vegetation surveys. An account of the method adopted, and findings, is provided in **Volume 5, Appendix 11.1: Desk Study and Legal/Policy Context** which also sets out the legislative provisions afforded to habitats, notably habitats of conservation concern.

3.1.2 Four records of one nationally rare or scarce plant species were identified across the ESA through the desk study; yellow coralroot *Corallorhiza trifida.* Three records of this plant were found west of Drumoak, within Loch of Park (NO 76847 98788) and the fourth record was located north of Kintore Substation, in Kemnay Forest (NJ 75929 15878). Yellow coralroot is marked as scarce on the Nationally rare or scarce taxa[11], and vulnerable on the Vascular Plant Red Data List for Great Britain[12].

3.2 Field Study

ESA Description

3.2.1 The ESA extends from Tealing in Angus in the south (and the location of the proposed Emmock substation), to the existing Kintore Substation in Aberdeenshire in the north.

3.2.2 In Angus, the ESA passes over the Sidlaw Hills north of Tealing, then into a landscape dominated by farmland, stretching approximately northeast from Forfar to Edzell. It crosses the River South Esk north of Forfar, and the River North Esk (and into Aberdeenshire) southeast of Edzell. The farmland landscape of Angus is dominated by arable farming, with pockets of woodland and forest which are relatively small and/or isolated. The exception to this pattern of land-use and habitats is where the ESA crosses the Sidlaw Hills, southeast of Glamis; the habitats in this location are dominated by heathland with evidence of grouse management.

3.2.3 The ESA continues into Aberdeenshire approximately northeast to the area near Fordoun; this stretch continues to be dominated by arable farmland with relatively small pockets of woodland, the exception to which are the forestry plantations of Capo Plantation, Inverury Wood and Lady Jane's Plantation. From Fordoun, the ESA continues in a more northerly direction through an area of farmland west of Glenbervie that exhibits increasing livestock farming and relatively smaller field sizes. Northeast of Glenbervie, it enters the forestry plantation of Fetteresso Forest and the location of the proposed Hurlie substation. The ESA continues north over the upland fringe habitats of Craigneil and into the forestry plantation of Durris Forest. North of Durris Forest, the ESA descends into a landscape of mixed farmland south and north of the River Dee, crossing the river near Kirkton of Durris. The ESA continues approximately north of the River Dee, passing east of Echt and west of Dunecht, before turning north-northeast towards the existing Kintore Substation. The landscape north of Durris Forest exhibits relatively smaller field sizes, with increased livestock farming and a more extensive network of woodland (relative to the stretch in Aberdeenshire from the River North Esk to Fordoun). There are further extents of forestry plantation forming a mosaic with fields of pasture and arable.

Summary of Habitats

3.2.4 A total of 40 UK Hab classifications and within these a total of 35 NVC communities have been recorded within the ESA as illustrated in **Figure 11.3: Habitat Survey Results**. Photographs are presented in **Annex 11.2.1: Habitat and Vegetation Survey Photographs**. All habitat definitions provided below are directly provided by the UK Hab Classification System[1]. The ESA covered approximately 8603 ha.

3.2.5 **Table 11.2.2: Habitats Recorded within the ESA** below outlines the habitats recorded, their corresponding UK Hab codes, the total area of each habitat within the ESA and within the Proposed Development (in hectares and percentage), and the sections within which these habitats were observed. Details of the habitats recorded in each Section are then presented in **Tables 11.2.3 to 11.2.8: Summary of Habitats Recorded in Section (A-F).**

[11] BSBI, 2024 *Nationally rare or scarce taxa* [Online] Available at: https://bsbi.org/taxon-lists
[12] JNCC, 2005, *The Vascular Plant Red Data List for Great Britain (Species Status No. 7)* [Online] Available at: https://hub.jncc.gov.uk/assets/cc1e96f8-b105-4dd0-bd87-4a4f60449907

Table 11.2.2: Habitats Recorded within the ESA[13]

Habitat[14]	UK Hab Code	Relevant Sections
Cropland Habitats		
Cropland – Arable field margins	c1a	A, B
Cropland – Cereal crops	c1c	All sections
Cropland – Horticulture	c1f	D
Cropland – Non-cereal crops	c1d	All sections
Cropland – Temporary grass and clover leys	c1b	All sections
Grassland Habitats		
Grassland – Bracken	g1c	A, D, E, F
Grassland – Lowland dry acid grassland	g1a	B, F
Grassland – Modified grassland	g4	All sections
Grassland – Other lowland acid grassland	g1d	C, D, E, F
Grassland – Other neutral grassland	g3c	All sections
Grassland – Upland acid grassland	g1b	A, E
Heathland and Shrub Habitats		
Heathland and shrub – Gorse scrub	h3e	A, D, E, F
Heathland and shrub – Hawthorn scrub	h3f	B
Heathland and shrub – Lowland heathland	h1a	E, F
Heathland and shrub – Mixed scrub	h3h	A, C, D, E, F
Heathland and shrub – Upland heathland	h1b	A, E
Wetland Habitats		
Wetland – Blanket bog	f1a	E
Wetland – Lowland fens	f2a	B, C, D, F
Wetland – Other swamps	f2f	F
Wetland – Purple moor-grass and rush pastures	f2b	A, B, D, E, F
Wetland – Reedbeds	f2e	D
Wetland – Upland flushes, fens and swamps	f2c	E
Woodland and Forest Habitats		
Woodland and forest – Felled	53	B, C, D, E
Woodland and forest – Lowland mixed deciduous woodland	w1f	B, E, F
Woodland and forest – Other coniferous woodland	w2c	All sections

[13] Rows highlighted in green indicate SBL Priority Habitat types.

[14] The SSEN Transmission Biodiversity Toolkit allows surveyors to record some UK Hab secondary codes at the same level as the primary codes. Primary codes are indicated by an alphanumeric code, while secondary codes are indicated by a numerical code only.

Habitat[14]	UK Hab Code	Relevant Sections
Woodland and forest – Other Scots pine woodland	w2b	All sections
Woodland and forest - Other woodland; broadleaved	w1g	All sections
Woodland and forest - Other woodland; mixed	w1h	All sections
Woodland and forest – Upland birchwoods	w1e	All sections
Woodland and forest – Upland mixed ashwoods	w1b	B, E
Woodland and forest – Wet woodland	w1d	B, C, D, E, F
Rivers and Lakes Habitats		
Rivers and Lakes - Natural lake or pond	361	All Sections
Rivers and Lakes - Ponds (Priority habitat)	19	E
Urban Habitats[15]		
Urban – Allotments	910	A
Urban – Artificial unvegetated, unsealed surface	u1c	A, D, E (present in all Sections)
Urban – Developed land; sealed surface	u1b	All sections
Urban – Sand pit quarry or open cast mine	1030	C, E
Urban – Suburban/mosaic of developed/natural surface	u1d	D, F (present in all Sections)
Urban - Vacant/ derelict land/ bare ground	73, 351	A, C, E, F (present in all Sections)
Urban – Vegetated garden	231	C, D, F (present in all Sections)

[15] Urban habitats were noted throughout all Sections. The table indicates where specific Urban habitat types were noted. However, extensive areas were not recorded in detail as they were associated with private lands comprising businesses and dwellings.

Section A

3.2.6 Section A extends from Tealing to Nether Drumgley, passing through Ironside Hill, Upper Hayston and Jericho. A total of 23 habitat types were recorded within this Section, and within these a total of eight NVC communities were recorded.

3.2.7 This Section was dominated by forms of cropland (45.1% of the ESA). Modified grassland made up 16.1% of the ESA within this Section. Notably, Upland Heathland made up 14.4% of the ESA, as the Proposed Development crosses the upland areas of Ironside Hill and Finlarg Hill. Woodland habitats made up only 3.0% of the ESA.

3.2.8 **Table 11.2.3: Summary of Habitats Recorded in Section A** below presents a breakdown of each habitat identified within Section A, the corresponding UK Hab and NVC code, and description. The final column highlights key areas where each habitat type was recorded, including key woodland listed on the AWI.

3.2.9 SBL habitats recorded within Section A are:

- Arable field margins (4.3 ha, 0.4% of the ESA);
- Upland heathland (167.7 ha, 14.4% of the ESA);
- Wetland – Purple moor-grass and rush pastures (0.1ha, <0.1% of the ESA); and
- Upland birchwoods (5.8 ha, 0.5% of the ESA).

Table 11.2.3: Summary of Habitats Recorded in Section A[13]

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Cropland – Arable field margins	c1a	N/A	Arable land is subject to continuous cultivation for the production of various crops and is typically bordered by weedy strips measuring approximately 2 to 12 m in width[17]. These strips function as edge habitats, supporting a wide range of biodiversity, including plant species, invertebrates, birds, amphibians, reptiles, and small mammals[18]. Common plant species found across the ESA include barley (*Hordeum vulgare)*, linseed (*Linum usitatissimum)*, white clover (*Trifolium repens),* pineappleweed (*Matricaria discoidea)* and Yorkshire fog (*Holcus lanatus)*. Arable field margins were also noted in Section B.	This habitat was recorded south of the Dean Water, in between agricultural fields (NO 41216 49148).

[16] For habitats which do not qualify as habitats of conservation concern, such as arable fields and conifer plantations, the NVC field is designated as N/A.
[17] UK Biodiversity Action Plan; *Priority Habitat Descriptions*. BRIG (ed. Ant Maddock) 2008. [Online] Available at: http://jncc.defra.gov.uk/page-5706.
[18] Swash, A., Lake, S., Liley, D., & Still, R., 2020. *Britain's Habitats : A field guide to the wildlife habitats of Great Britain and Ireland* - fully revised and updated second edition. [Online] Available at: https://openlibrary.org/books/OL29501782M/Britain's_Habitats.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Cropland – Cereal crops	c1c	N/A	Cereal crops were comprised of grasses such as barley, wheat (*Triticum* spp). and oats (*Avena sativa).*	Cereal crops were the most abundantly recorded habitats across the ESA.
Cropland – Non-cereal crops	c1d	N/A	Non-cereal crops are all the other crops not mentioned above[19].	This was a common habitat across the ESA.
Cropland – Temporary grass and clover leys	c1b	N/A	Temporary grass and clover leys are typically sown with grasses or legumes as part of a rotational system alongside other economically valuable crops[19]. These habitats play a crucial role in improving soil quality, particularly through the nitrogen fixation capabilities of legumes, which enhance soil nutrient availability[20]. Common plant species found within the ESA included white clover, red clover (*Trifolium pratense)* and rye grass (*Lolium perenne)*[19]**.**	This was a common habitat across the ESA.
Grassland – Bracken	g1c	U20	Bracken is recognised as a distinct habitat type due to its occurrence in large, extensive areas (over 95% cover of bracken (*Pteridium aquilinum)*)[19], often spreading at a rate of approximately 1 m per year. Livestock grazing contributes to its increased dominance by reducing the presence of competing vegetation[18]. The U20 NVC code represents a community dominated by bracken, typically occurring in transitional areas between farmed lowlands and unenclosed uplands. It often forms mosaics with grasslands, heaths, and woodlands[21]. This was found to be true in this Section, where other species such as tormentil (*Potentilla erecta)*, heath bedstraw (*Galium saxatile)*, and heather (*Calluna vulgaris)* were interspersed with bracken. Bracken was also found in Sections E and F, and was a common secondary code throughout the ESA.	This habitat was recorded in an area with a widespread cover of bracken between and around Ironside Hill and Finlarg Hill (NO 39614 41574), and around Kincaldrum Hill (NO 41076 45008).
Grassland – Modified grassland	g4	N/A	This habitat has a grass cover over 75%, and in this Section it was generally found to be comprised of rye-grass and clover. It is species poor, with less than nine species per square metre[19], such as Yorkshire fog, daisy (*Bellis perennis*), dandelion (*Taraxacum* agg.) and broad-leaved dock (*Rumex*	This was a common habitat across the ESA.

[19] Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J., 2020. UK Habitat Classification – Habitat Definitions V1.1. [Online] Available at: http://ukhab.org.

[20] Vinther, F. P., & Jensen, E. S., 2000. *Estimating legume N2 fixation in grass-clover mixtures of a grazed organic cropping system using two methods*. Agriculture Ecosystems & Environment, 78(2), 139–147. [Online] Available at: https://doi.org/10.1016/s0167-8809(99)00124-3.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
			obtusifolius). Secondary codes to highlight management and grazing were noted across the ESA.	
Grassland – Other neutral grassland	g3c	N/A	This habitat supports between nine and 15 plant species per square metre[19]. It was fairly common within the ESA and included plants such as Yorkshire fog, sweet vernal grass (*Anthoxanthum odoratum)*, wavy hairgrass (*Avenella flexuosa)*, couch (*Elymus repens*), perennial rye-grass, false oat-grass (*Arrhenatherum elatius)*, and cock's foot (*Dactylis glomerata)*.	This was a common habitat across the ESA.
Grassland – Upland acid grassland	g1b	U4	Upland acid grasslands occur in both enclosed and unenclosed uplands. Species found in upland grasslands depend on grazing pressure and soil type. The NVC community U4 is typically associated with acidic soils and is characterized by short vegetation due to moderately high grazing pressure, where vascular plants are surrounded by a dense mat of mosses[21]. Species recorded within the ESA include sheep's fescue (*Festuca ovina),* mat-grass (*Nardus stricta)*, sweet vernal grass, heath bedstraw, tormentil and mosses such as *Hylocomium splendens* and *Rhytidiadelphus loreus*. Upland acid grassland was also found in Section E.	This habitat was recorded north of Prieston Farm (NO 39106 40419).
Heathland and shrub – Gorse scrub	h3e	W23	The NVC community W23 has a widespread distribution, generally found at the edge of woodlands[22], and is dominated by gorse *Ulex europaeus*[19]. Other species noted within the ESA are Scotch broom (*Cytisus scoparius)*, heather, with the occasional heath bedstraw and Yorkshire fog. Gorse scrub was also recorded in Sections D, E and F.	This habitat was recorded south of Upper Hayston (NO 40539 44963).
Heathland and shrub - Mixed scrub	h3h	N/A	A dense habitat composed of multiple scrub species, where no single species dominates the landscape[19]. This Section featured a mix of gorse, willow (*Salix* spp)., bramble (*Rubus fruticosus* agg.), bracken, and broom. Other species present included common nettle (*Urtica dioica)*, rosebay willowherb (*Chamaenerion angustifolium)*, Yorkshire fog, and sweet vernal grass. Mixed scrub was also observed in Sections D, E and F.	This habitat was recorded north of Finlarg Hill (NO 40222 42463), south of Ironside Hill (NO 39933 40405) and southeast of Craigowl Hill (NO 38479 39463).

[21] Averis, B., Averis, A., & Birks, J., 2014. *An illustrated guide to British upland vegetation*. [Online] Available at: https://data.jncc.gov.uk/data/a17ab353-f5be-49ea-98f1-8633229779a1/IllustratedGuideBritishUplandVegetation-2004.pdf.

[22] Rodwell, J.S. (ed.), 1991. *British Plant Communities. Volume 1. Woodlands and scrub*. Cambridge University Press.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Heathland and shrub - Upland heathland	h1b	H9, H12	Upland heathland vegetation occurs on thin peats, less than 50 cm deep, with more than 25% dwarf shrubs, typically found at altitudes above 300 m but below the alpine zone (around 750 m). Two NVC codes were recorded in this Section, H9 and H12, the main difference between the two is a lack of pleurocarpous mosses under the shrubs of H9[21]. Heather was dominant in this habitat however, other species such as blaeberry (*Vaccinium myrtillus)*, gorse, bell heather (*Erica cinerea)*, and wavy hairgrass were frequent. The moss layer in H12 was dominated by *Hylocomium splendens*. Upland heathland was also recorded in Section E.	Upland heathland was recorded between Ironside Hill and Kincaldrum Hill (NO 39962 41572).
Wetland – Purple moor-grass and rush pastures	f2b	M23	Purple moor-grass and rush pasture habitats are typically found on mineral or shallow peaty soils within enclosed agricultural lowlands[21]. Peaty soils in these habitats are less than 50 cm in depth and are influenced by groundwater flow, distinguishing them from blanket bogs and lowland raised bogs, which develop under different hydrological and soil conditions[23]. The vegetation found within the ESA was characterized by species such as sharp-flowered rush (*Juncus acutiflorus*), soft rush, oval sedge (*Carex leporina*), meadow vetchling (*Lathyrus pratensis*), with occasional occurrences of angelica (*Angelica sylvestris*), purple orchid (*Dactylorhiza* spp.), and marsh valerian (*Valeriana dioica*). The NVC community M23 was recorded for all habitats within this category, which comes from woodland and scrub that are kept in check by factors such as grazing[21]. Purple moor-grass and rush pastures were also recorded in Sections C, D, E and F.	This habitat was recorded as patches scattered within heathland at Ironside Hill (NO 40651 40667).
Woodland and forest - Other coniferous woodland	w2c	N/A	This category includes all other coniferous woodlands that are not dominated by Scots pine, including plantations and self-sown conifers[19].	This was a common habitat across the ESA.

[23] NatureScot, n.d. Priority Habitat - Purple Moor Grass And Rush Pastures. [Online] Available at: https://data.jncc.gov.uk/data/6fe22f18-fff7-4974-b333-03b0ad819b88/UKBAP-BAPHabitats-43-PurpleMoorGrass.pdf.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Woodland and forest - Other Scots pine woodland	w2b	N/A	Other Scots pine woodlands refer to coniferous woodlands dominated by Scots pine (*Pinus sylvestris*) that are not considered native woodlands[19]. The ground flora consists of common nettle, tufted hairgrass (*Deschampsia cespitosa),* Yorkshire fog, bent species (*Agrostis* spp)., bramble, fescue (*Festuca* spp)., and cock's foot. Other Scots pine woodland has also been recorded in Sections B, C, D and F.	This habitat was recorded west of Kincaldrum Hill (NO 40862 43855) and west of Douglastown (LEPO; NO 40801 47312).
Woodland and forest - Other woodland; broadleaved	w1g	N/A	This habitat typically includes all other broadleaved woodlands that do not fit into any other specific habitat classification containing broadleaved trees[19]. The secondary code 'Plantation' was frequent in this category. Tree species found within this Section included silver birch (*Betula pendula*), beech (*Fagus sylvatica*), oak (*Quercus* spp.), ash (*Fraxinus excelsior*), elder (*Sambucus nigra*), hawthorn (*Crataegus monogyna*), horse chestnut (*Aesculus hippocastanum*), sycamore (*Acer pseudoplatanus*), and rowan (*Sorbus aucuparia*). The ground cover consisted of yarrow, germander speedwell (*Veronica chamaedrys*), dog violet (*Viola riviniana*), red campion (*Silene dioica*), and false oat-grass. This habitat was recorded in all Sections.	This habitat was recorded south and east of Arniefoul Cottage (NO 40464 44053).
Woodland and forest - Other woodland; mixed	w1h	N/A	A mixed woodland consisting of both coniferous and broadleaved trees, where neither group accounts for more than 80% of the total cover, and which does not fall into any other specific woodland type[19]. Tree cover consisted of rowan, ash, oak, elder, beech, Scots pine, and Sitka spruce (*Picea sitchensis*). Ground cover was composed of creeping soft grass (*Holcus mollis*), heather, Yorkshire fog, wavy hairgrass, and tormentil. This habitat was recorded in all Sections.	This habitat was recorded in two locations. One mixed woodland was noted south of Arniefoul Cottage (NO 40204 4422), while the other was observed east of Berrymoss Wood (NO 40824 48876).
Woodland and forest – Upland birchwoods	w1e	W11	Upland birchwoods are primarily composed of birch species, but can also include willows, rowan, and hazel. As pioneers, birches quickly colonise open areas through wind-blown seeds, and when the ground becomes too wet and exposed, downy birch tends to take over[18]. The ideal conditions for this habitat are well-drained brown earth or podzol soils, typically found on moderate to steep slopes below 400 m[24]. W11 is an NVC woodland community of moist, free draining soils and is usually dominated by oak[29], which was found to be true in habitats across	Recorded in a woodland south of Upper Hayston (LEPO; NO 40554 45325).

[24] NatureScot., n.d. *Priority Habitat - Upland Birchwoods*. [Online] Available at: https://data.jncc.gov.uk/data/2829ce47-1ca5-41e7-bc1a-871c1cc0b3ae/UKBAP-BAPHabitats-57-UplandBirchwoods.pdf.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
			the ESA. Ground cover consisted of sweet vernal grass, wood sorrel (*Oxalis acetosella*), cock's foot, and common dog violet. Upland birchwoods were also recorded in Sections B, C, D and E.	
Rivers and Lakes - Natural lake or pond	r1	N/A	Ponds are small water bodies, usually up to 2 ha in size, and lack the connectivity seen in larger water bodies. Ponds hold water throughout the year and are primarily fed by rain and groundwater. They are particularly vulnerable to pollution, nutrient enrichment from agricultural runoff, and neglect[18]. Dominant plant species found within the ESA include yellow flag iris (*Iris pseudacorus*), pondweed (*Potamogeton* spp.), watercress (*Nasturtium aquaticum*), willow, with occasional rushes (*Juncus* spp.) and sedges (*Carex* spp.) such as soft rush *Juncus effusus* and bottle sedge (*Carex rostrata*). Ponds were also recorded in Sections B, C, D and F.	This habitat was recorded southeast of Arniefoul Cottage (NO 40565 44028), and southwest of Upper Hayston (NO 40259 45593).
Urban – Artificial unvegetated, unsealed surface	u1c	N/A	Any land cleared for development or infrastructure construction that remains unvegetated and has not yet been covered by impervious materials can fit into this category[19].	This was a common habitat across the ESA.
Urban – Developed land; sealed surface	u1b	N/A	This habitat is a human-made environment developed for urban areas and infrastructure, characterised by sealed surfaces, which significantly limit opportunities for biodiversity to thrive[19].	This was a common habitat across the ESA.
Urban – Suburban/mosaic of developed/natural surface	u1d	N/A	This habitat can be found in housing and gardens in suburban areas, it is comprised of a mosaic of developed and natural surfaces at a small scale[19].	This was a common habitat across the ESA.
Urban - Vacant/ derelict land/ bare ground	u1 (351)	N/A	This habitat is defined as land that has been previously disturbed by human activity but currently has no active land use[19].	This was a common habitat across the ESA.
Urban – Vegetated garden	231	N/A	A vegetated garden, typically with flower beds and grass[19].	This was a common habitat across the ESA.

Section B

3.2.10 Section B extends from Nether Drumgley to Woodside, passing through Baldoukie and Weiris Wood and ending at Hoodston. A total of 25 UK Hab communities were recorded within this Section, and within these a total of 13 NVC communities were recorded.

3.2.11 This Section was dominated by forms of cropland (70.1% of the ESA) and modified grassland (13.5% of the ESA). Woodland habitats made up 9.6% of the ESA, the majority of which (6.0% were non-SBL woodland habitat types).

3.2.12 Several habitats were recorded in Section B which were not present in Section A, including: Upland mixed ashwoods, Wet woodland, Felled woodland, Lowland fens, and Hawthorn scrub.

3.2.13 **Table 11.2.4: Summary of Habitats Recorded in Section B** below presents a breakdown of each habitat identified within Section B, its corresponding UK Hab and NVC code, and description. The final column highlights key areas where each habitat type was recorded.

3.2.14 SBL habitats recorded within Section B are:

- Arable field margins (0.5 ha, <0.1% of the ESA);
- Lowland dry acid grassland (2.5 ha, 0.2% of the ESA);
- Lowland fens (0.3 ha, <0.1% of the ESA);
- Purple moor-grass and rush pastures (0.9 ha, 0.1% of the ESA);
- Lowland mixed deciduous woodland (1.5 ha, 0.1% of the ESA);
- Upland birchwoods (41.4 ha, 2.6% of the ESA);
- Upland mixed ashwoods (0.3 ha, <0.1% of the ESA); and
- Wet woodland (12.5 ha, 0.8% of the ESA).

Table 11.2.4: Summary of Habitats Recorded in Section B[13]

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Cropland – Arable field margins	c1a	N/A	See Section A for detailed descriptions of the habitat, and associated plant species.	This habitat was recorded at the Meadows near the King's Burn (NO 44589 55120).
Cropland – Cereal crops	c1c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Cropland – Non-cereal crops	c1d	N/A	See Section A for habitat description.	This was a common habitat in this Section.
Cropland - Temporary grass and clover leys	c1b	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Grassland – Lowland dry acid grassland	g1a	U4	Of all the acid grassland types, lowland dry acid grassland is the most species-rich, supporting up to 25 plant species per square metre. This habitat occurs on nutrient-poor, free-draining soils with a pH ranging from 4 to 5.5[17].	This habitat was recorded within Woodside Local Nature Conservation Site (LNCS; NO 43573 54029).

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
			Species found within the ESA include common bent (*Agrostis capillaris*), wavy hair-grass, tormentil, heath bedstraw, sweet vernal grass, false oat-grass, gorse, with occasional heath rush (*Juncus squarrosus*), and broom. Lowland dry acid grassland was also found in Section F.	
Grassland – Modified grassland	g4	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Grassland – Other neutral grassland	g3c	MG9	See Section A for habitat description. The most common NVC code was MG9, which was dominated by large tufts of tufted hairgrass, which produces dense tussocks that allow for little else to thrive around it[25]. Other species recorded within this Section include Yorkshire fog, cock's foot and false oat-grass.	This habitat was widespread throughout the Section.
Heathland and shrub – Hawthorn scrub	h3f	W21	Habitat was fully dominated by hawthorn, though other species were also abundant, including gorse and bramble. The ground flora was comprised of Yorkshire fog, sorrel (*Rumex acetosa*), nettle, and cleavers (*Galium aparine*).	This habitat was recorded in Den of Baldoukie, west of Tannadice (NO 46926 58517), and in a strip of woodland between agricultural fields that intersects with the King's Burn (NO 44512 55614).
Wetland – Lowland fens	f2a	S28	The Lowland Fens priority habitat occurs in areas where the ground remains waterlogged for most of the year[18]. It encompasses a variety of wetland types, including swamps, tall fen communities, sedge mires, flushes, springs, soakways, and valley mires[26]. These habitats, typically enclosed and highly nutrient-rich, support a wide diversity of invertebrates such as flies, beetles, and moths. Lowland fens are transitional habitats that, over time, may succeed into wet woodland or develop into raised bogs if peatland conditions improve[18]. The NVC community S28 is typical of circumneutral and mesotrophic to neutral waters, where the vegetation is poor, dominated by reed canary grass (*Phalaris arundinacea*)[27]. Other plant species found in this Section were gorse and broom along the edges. Lowland fens were also recorded in Section C, D and F.	This habitat was recorded to the west of Boggie Wood (NO 50008 61664). The S28 community was also recorded near Nether Bow farm, in an area dominated by M23 (see Purple moor-grass and rush pastures).

[25] S Rodwell, J., 1992. *Holcus Lanatus-Deschampsia Cespitosa Grassland*. British Plant Communities. [Online] Available at: https://doi.org/10.1017/9780521391665.013.
[26] NatureScot, n.d. Priority Habitat - Lowland Fens. [Online] Available at: https://data.jncc.gov.uk/data/6fe22f18-fff7-4974-b333-03b0ad819b88/UKBAP-BAPHabitats-27-LowlandFens.pdf.
[27] Rodwell, J.S. (ed.) 1995. British Plant Communities. Volume 4. Aquatic communities, swamps and tall-herb fens. Cambridge University Press.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Wetland – Purple moor-grass and rush pastures	f2b	M23, (S28)	See Section A for habitat description.	This habitat was recorded near Nether Bow farm north of Padanaram (NO 43320 53131), and in Lochty Wood near the Weiris Burn (NO 53097 61836).
Woodland and forest - Felled	53	N/A	This classification is applied to areas showing evidence of recent felling, typically identified by rows of tree stumps. These areas must have a tree stocking density of less than 20% and are expected to be replanted in the future[19]. Felled woodlands were also recorded in Sections C and E.	This habitat was recorded east of Inshewan Mansion House (NO 45117 57061).
Woodland and forest – Lowland mixed deciduous woodland	w1f	W10	This habitat includes woodland that grows in a variety of soil conditions, with plant species composition varying depending on the soil type. The NVC code W10 in particular develops over base-poor brown soils[29], and in this Section, the canopy was composed of downy birch (*Betula pubescens*), larch (*Larix* spp.), rowan, and pedunculate oak (*Quercus robur*) were abundant, while the ground flora featured yarrow, germander speedwell, dog violet and red campion. Lowland mixed deciduous woodland has also been found in Sections E and F.	This habitat was recorded at Mosside of Ballinshoe (NO 42699 52591).
Woodland and forest - Other coniferous woodland	w2c	N/A	See Section A for habitat description.	This was a common habitat across the Section, the majority concentrated in Vayne Moor Wood Roughmount Wood, Weiris Wood, Duns Wood and Lochty Wood (NO 51244 61063).
Woodland and forest - Other Scots pine woodland	w2b	N/A	See Section A for habitat description.	This habitat was recorded west of Burnside the Meadows (LEPO; NO 44354 55111) and on the north bank of the River South Esk (NO 45083 56716).
Woodland and forest - Other woodland; broadleaved	w1g	N/A	See Section A for habitat description. Plant species found within this Section included lime (*Tilia* spp.), beech, cherry (*Prunus* spp.), birch (*Betula* spp.), ash, sycamore, alder (*Alnus glutinosa*), and rowan. The ground cover consisted of forget-me-not (*Myosotis* spp.), comfrey (*Symphytum* spp.), nettles, and gorse.	This was a common habitat in this Section, notable examples were recorded east of Forestmuir Wood (LEPO; NO 44359 55049), Duns Wood (LEPO; NO 52893 61951) and Auchleuchrie LNCS (NO 44415 57698).

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Woodland and forest - Other woodland; mixed	w1h	N/A	See Section A for habitat description.	Records of mixed woodland were scattered throughout the Section. Notable examples include woodlands north of Burnside the Meadows (NO 44602 55275) and Duns Wood (LEPO; NO 52312 61715).
Woodland and forest – Upland birchwoods	w1e	W11	See Section A for habitat and NVC community description. The dominant trees in this Section were either oak or birch, with a few ash and willows. The ground cover consisted of Yorkshire fog, sweet vernal grass, wavy hairgrass, nettle, cleavers, and chickweed wintergreen (*Trientalis europaea*).	This habitat was recorded scattered throughout Section B, recorded at Mosside of Ballinshoe (NO 42288 52640; LEPO), Woodside LNCS (NO 43617 53907), Forestmuir Wood (NO 43290 54063 and NO 44018 54845; the latter LEPO), Knowehead (NO 46995 59386; LEPO), and Lochty Wood (between NO 53018 61992 and NO 53732 62088; LEPO).
Woodland and forest – Upland mixed ashwoods	w1b	W9	Upland mixed ashwoods are located on base-rich soils in upland Britain, where ash is typically the dominant species[19]. This priority habitat is typically found on moderate to steep slopes at elevations below 300 m[28]. The W9 community was observed on permanently moist soils, near streams[28], where other species such as birch, oak, beech, and sycamore were also abundant. The ground flora included nettle, bracken, wood avens (*Geum urbanum*), broad buckler fern (*Dryopteris dilatata*), and herb Robert (*Geranium robertianum*). This habitat was also recorded in Section E.	This habitat was recorded in an Ancient Woodland (of semi-natural origin) near Noran Water, west of Wellford (NO 47855 60163), and on the southern side of Bog Burn, within Den of Baldoukie (NO 47051 58520).
Woodland and forest – Wet woodland	w1d	W1, W6, W7	Wet woodland is a priority habitat found on wet, acidic to neutral soils. It is a successional habitat that develops on mires, bogs, fens, and along streams and lake edges[19]. Three NVC codes are associated with this habitat, and a brief description of each is provided here. W1 forms over wet mineral soils around ponds and lakes. W6 is a community that develops on eutrophic moist soils or floodplain mires and, unlike W7, lacks tall swamp and fen species. W7 can	Several wet woodlands were identified in this Section, including: near Padanaram (NO 42267 51923), near Nether Bow (NO 43206 53225), along the King's Burn (NO 44481 55340), on the banks of the River South Esk (NO 45982 57442), and south of Weiris Burn in Lochty Wood (LEPO; NO 53281 61883).

[28] NatureScot, n.d. Priority Habitat - Upland Mixed Ashwood. [Online] Available at: https://data.jncc.gov.uk/data/2829ce47-1ca5-41e7-bc1a-871c1cc0b3ae/UKBAP-BAPHabitats-62-UplandMixedAshwoods.pdf.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
			be found on mineral soils, most often on small flushes on slopes. Various tree species can help differentiate these three communities[29]. The most common tree species in this habitat were alder, various species of willow, and downy birch. The ground vegetation included water horsetail (*Equisetum fluviatile*), creeping soft grass, heather, nettle, tufted hairgrass, marsh valerian, and reed canary grass. Wet woodland was also recorded in Sections C, D, E and F.	
Rivers and Lakes - Natural lake or pond	r1	N/A	See Section A for habitat description.	Five ponds were found in close proximity to each other north of Padanaram (NO 42125 51848). A further pond was identified east of Haughs of Ballinshoe (NO 43156 53231).
Urban – Artificial unvegetated, unsealed surface	u1c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Developed land; sealed surface	u1b	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Suburban/mosaic of developed/natural surface	u1d	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban - Vacant/ derelict land/ bare ground	u1 (351)	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Vegetated garden	231	N/A	See Section A for habitat description.	This was a common habitat across the ESA.

[29] Hall, J., Kirby, K., & Whitbread, A., 2004. *National Vegetation Classification: Field Guide to Woodland*. [Online] Available at: https://data.jncc.gov.uk/data/673dc337-e58f-4f6b-ac7b-717001983c2e/JNCC-NVC-FieldGuideWoodland-2004.pdf.

Section C

3.2.15 Section C extends from Hoodston to Newton, passing through Northgate and Lady Jane's Plantation and ending in Haughhead. A total of 22 UK Hab communities were recorded within this Section, and within these a total of five NVC communities were recorded.

3.2.16 The most common habitat in this Section was cropland, comprising 76.6% of the ESA, with more limited extents of Modified grassland recorded (2.4% of the ESA). Woodland habitats made up 12.1% of the ESA, the majority of which (11.4% were non-SBL woodland habitat types).

3.2.17 Additional habitat types recorded were: Other lowland acid grassland, and Urban – Sand pit quarry or open cast mine (which related to a quarry southwest of Inveriscandye).

3.2.18 **Table 11.2.5: Summary of Habitats Recorded in Section C** below presents a breakdown of each habitat identified within Section C, its corresponding UK Hab and NVC code, and description. The final column highlights key areas where each habitat type was recorded.

3.2.19 SBL habitats recorded within Section C are:

- Lowland fens (0.2 ha, <0.1% of the ESA);
- Upland birchwoods (6.1 ha, 0.4% of the ESA); and
- Wet woodland (3.5 ha, 0.2% of the ESA).

Table 11.2.5: Summary of Habitats Recorded in Section C[13]

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Cropland – Cereal crops	c1c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Cropland – Non-cereal crops	c1d	N/A	See Section A for habitat description.	This was a common habitat in this Section.
Cropland - Temporary grass and clover leys	c1b	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Grassland – Modified grassland	g4	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Grassland – Other lowland acid grassland	g1d	U4	Any other lowland acid grassland that does not fit into more specific codes[19]. See descriptions of Lowland dry acid grassland and associated NVC code in Section B above. Plant community across the ESA was formed of Yorkshire fog, perennial ryegrass, common nettle, dock (*Rumex* spp.), broom, buttercup (*Ranunculus* spp.), daisy, wavy hairgrass, marsh thistle (*Cirsium palustre*), bedstraw (*Galium* spp.), and ragged robin (*Silene flos-cuculi*).	This habitat was recorded west of Capo Plantation (NO 62685 66763).

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
			This habitat was also encountered in Sections D, E and F.	
Grassland – Other neutral grassland	g3c	N/A	See Section A for habitat description.	This habitat was widespread throughout this Section.
Heathland and shrub - Mixed scrub	h3h	N/A	See Section A for habitat description.	This habitat was recorded alongside a track near Edzell (NO 62554 67621).
Wetland – Lowland fens	f2a	S28	See habitat description detailed in Section B. Lowland fens here were predominantly covered by reed canary grass and soft rush. Additional species observed included forget-me-not, creeping buttercup (*Ranunculus repens*), and occasional willow.	This habitat was recorded at Haughhead in a farm pond that had a broken sluice at the time of survey (NO 68390 72682).
Woodland and forest - Felled	53	N/A	See Section B for habitat description.	Felled woodlands were recorded in a northern portion of Little Brechin Wood (LEPO; NO 57484 63279) and Capo Plantation (LEPO; NO 63414 67473).
Woodland and forest - Other coniferous woodland	w2c	N/A	See Section A for habitat description.	This habitat was widespread throughout this Section; notable examples include parts of Little Brechin Wood (LEPO; NO 57597 63080) and Lady Jane's Plantation (LEPO; NO 66620 71277).
Woodland and forest - Other Scots pine woodland	w2b	N/A	See Section A for habitat description.	This habitat was recorded in several locations, including the following examples: Lady Jane's Plantation (LEPO; NO 66664 71601), east of Coldstream Cottage (LEPO; NO 67038 72300) and Greenbottom Wood (LEPO; NO 67874 72912).
Woodland and forest - Other woodland; broadleaved	w1g	N/A	See Sections A and B for detailed descriptions of the habitat and associated plant species. Ash dieback and Himalayan balsam (*Impatiens glandulifera*) were noted in this Section.	This was a common habitat in this Section.
Woodland and forest - Other woodland; mixed	w1h	N/A	See Section A for habitat description.	This habitat was recorded scattered throughout the Section, including examples at Bankhead Wood (NO 58505 64485) and Inverury Wood (LEPO; NO 64492 68093).

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Woodland and forest – Upland birchwoods	w1e	W11	See Sections A and B for detailed descriptions of the habitat, NVC code, and associated plant species.	This habitat was recorded in two interconnected woods, Belliehill Wood and Little Brechin Wood (LEPO; NO 56916 63088 and NO 57370 63074).
Woodland and forest – Wet woodland	w1d	W6	See Section B for habitat and NVC community description. The dominant tree species in this Section were grey willow (*Salix cinerea*), crack willow (*Salix fragilis*), birch, and alder. Ground cover was made of common nettle and reed canary grass.	This habitat was recorded in a small woodland west of West Water (NO 60486 66044), Cleary Wood (NO 63171 67700), and at Haughhead (NO 68341 72704).
Rivers and Lakes - Natural lake or pond	r1	N/A	See Section A for habitat description.	A pond was recorded west of Little Thornton Wood (NO 65649 7074).
Urban – Artificial unvegetated, unsealed surface	u1c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Developed land; sealed surface	u1b	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Sand pit quarry or open cast mine	1030	N/A	Quarries are areas designated for resource extraction, where vegetation and topsoil have been removed[19], resulting in minimal to no biodiversity value.	A quarry was identified west of Capo Plantation (NO 62995 67048).
Urban – Suburban/mosaic of developed/natural surface	u1d	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban - Vacant/ derelict land/ bare ground	u1 (351)	N/A	See Section A for habitat description.	This habitat was recorded in a small piece of land within a woodland northwest of Auchenreoch House (NO 59760 65761).
Urban – Vegetated garden	231	N/A	See Section A for habitat description.	This was a common habitat across the ESA.

Section D

3.2.20 Section D extends from Haughhead to Auchenzeoch, passing through Mid Blairs and Tannachie and stopping at Hurlie. A total of 26 UK Hab communities were recorded within this Section, and within these a total of 13 NVC communities were recorded.

3.2.21 Cropland and modified grassland make up 75.8% of the ESA in this Section. Woodland habitats made up 11.8% of the ESA, the majority of which (11.2% were non-SBL woodland habitat types).

3.2.22 An additional habitat was recorded: Horticulture.

3.2.23 **Table 11.2.6: Summary of Habitats Recorded in Section D** below presents a breakdown of each habitat identified within Section D, its corresponding UK Hab and NVC code, and description. The final column highlights key areas where each habitat type was recorded.

3.2.24 SBL habitats recorded within Section D are:

- Lowland fens (0.3 ha, <0.1% of the ESA);
- Purple moor-grass and rush pastures (8.1 ha, 0.6% of the ESA);
- Reedbeds (0.5 ha, <0.1% of the ESA);
- Upland birchwoods (5.3 ha, 0.4% of the ESA); and
- Wet woodland (2.5 ha, 0.2% of the ESA).

Table 11.2.6: Summary of Habitats Recorded in Section D[13]

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Cropland – Cereal crops	c1c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Cropland – Horticulture	c1f	N/A	This habitat refers to commercial horticultural land used for cultivating flower beds, nurseries, or vegetable plots[19].	This habitat was recorded in various locations, including around Den Wood (NO 74755 77831).
Cropland – Non-cereal crops	c1d	N/A	See Section A for habitat description.	This was a common habitat in this Section.
Cropland - Temporary grass and clover leys	c1b	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Grassland - Bracken	g1c	U20	See Section A for habitat and NVC community description.	This habitat was recorded adjacent to the Burn of Annamuick (NO 78595 84984).
Grassland – Modified grassland	g4	N/A	See Section A for habitat description.	This was a common habitat across the ESA.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Grassland – Other lowland acid grassland	g1d	U4	See Section C for habitat description.	This habitat was recorded as limited extents in two fields south of Fetteresso Forest.
Grassland – Other neutral grassland	g3c	U4, MG1, MG9, MG10	See Sections A and B for habitat and NVC communities description. Three more NVC codes were observed, U4 (described in Section A), MG1 and MG10. MG10 describes a vegetation that forms over damp acid to neutral soils in sloping ground or neglected plots of land[21]. The MG1 community can be found in lowland habitats and its distribution and composition varies depending on management. These two communities can be differentiated by plant distribution, MG1 being found on drier soil conditions compared to MG10[30]. Plant species found in this Section include false oat-grass and reed canary grass, with smaller amounts of cock's foot, Yorkshire fog, hogweed (*Heracleum sphondylium*), tufted hairgrass, creeping soft grass, and couch grass.	This habitat was widespread throughout this Section.
Heathland and shrub – Gorse scrub	h3e	W23	See habitat description in Section A.	This habitat was recorded in several locations, including examples north of the Bervie Water (NO 74867 81174).
Heathland and shrub - Mixed scrub	h3h	N/A	See habitat description in Section A. The mix of scrub in this Section was comprised of broom and gorse.	This habitat was recorded south of Droop Hill (NO 75912 80915).
Wetland – Lowland fens	f2a	S19	The NVC codes associated with this habitat (described in Section B) were M27 and S19. In this Section, M27 featured tall swards of soft rush, interspersed with meadowsweet (*Filipendula ulmaria*), knapweed (*Centaurea nigra*), perforate St John's wort (*Hypericum perforatum*), and a few orchids. S19 was dominated by common spike-rush (*Eleocharis palustris*), accompanied by yellow flag iris, reed canary grass, and creeping bent grass (*Agrostis stolonifera*).	This habitat was recorded near the Bervie Water (NO 75163 81120).
Wetland – Purple moor-grass and rush pastures	f2b	M23	See Section B for detailed descriptions of the habitat, NVC code, and associated plant species.	This habitat was recorded to the east of the Nursery Burn in two small pockets of woodland (NO 74872 78724 and NO 75054 78912), and to the south and east of Droop Hill (NO

[30] Rodwell, J. S. (ed.) 1992. *British Plant Communities. Volume 3. Grassland and montane communities*. Cambridge University Press.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
				75427 81209, NO 75682 81271 and NO 75970 81538).
Wetland - Reedbeds	f2e	S26	Reedbeds are wetlands dominated by common reed (*Phragmites australis*), on ground which is waterlogged for the majority of the year. This type of vegetation can occur in a variety of situations, including alongside watercourses and waterbodies, or within a mosaic with relatively drier habitat types. When these habitats occur within intensive farmland, they can act as important habitat patches for wildlife. The plant species noted within the ESA included species adapted to waterlogged conditions, such as meadowsweet and marsh thistle.	This habitat was recorded in a small area south of Hill of Quithel (NO 77147 84230).
Woodland and forest - Felled	53	N/A	See Section B for habitat description.	This habitat was recorded in Fetteresso Forest within this Section.
Woodland and forest - Other coniferous woodland	w2c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Woodland and forest - Other Scots pine woodland	w2b	N/A	See Section A for habitat description.	This habitat was recorded east of Kinkell Cottage (NO 74626 79978).
Woodland and forest - Other woodland; broadleaved	w1g	N/A	See Sections A and B for detailed descriptions of the habitat, NVC code, and associated plant species.	This habitat was widespread throughout this Section.
Woodland and forest - Other woodland; mixed	w1h	N/A	See Section A for habitat description.	This habitat was recorded scattered throughout the Section; notable examples include Cammackmuir (LEPO; NO 70568 74693) and Woods of Redhall (LEPO; NO 74242 77116).
Woodland and forest – Upland birchwoods	w1e	W11	See Sections A and B for detailed descriptions of the habitat, NVC code, and associated plant species.	Observed at Cammackmuir Plantation (LEPO; NO 70577 74704).
Woodland and forest – Wet woodland	w1d	W1, W6, W7	See Section B for habitat and NVC communities description. In this Section, the dominant trees were alder, willow, and silver birch. The ground cover consisted of many plant species such as tufted hairgrass, soft rush, Yorkshire fog, reed canary grass, and cuckooflower (*Cardamine pratensis*).	This habitat was recorded in the north of Den Wood (LEPO; NO 74518 78672) and near the Bervie Water (NO 75475 81269 and NO 75753 81312).

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Rivers and Lakes - Natural lake or pond	r1	N/A	See habitat description in Section A.	A few ponds were recorded along this Section, within and to the north of Den Wood (NO 74497 78610 and NO 74586 78601) and east of Mid Blairs (NO 74549 80369).
Urban – Artificial unvegetated, unsealed surface	u1c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Developed land; sealed surface	u1b	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Suburban/mosaic of developed/natural surface	u1d	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban - Vacant/ derelict land/ bare ground	u1 (351)	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Vegetated garden	231	N/A	See Section A for habitat description.	This was a common habitat across the ESA.

Section E

3.2.25 Section E extends from Hurlie to West Park, passing through Slug Road and Meikledams. A total of 31 UK Hab communities were recorded within this Section, and within these a total of 17 NVC communities were recorded.

3.2.26 Unlike Sections A to D, croplands were not as dominant, comprising 7.0% of the ESA. Instead, the ESA extends from Fetteresso Forest over Craigneil north of Slug Road, and through Durris Forest down onto the farmland south of the River Dee. Woodland habitats therefore dominate the ESA (55.4%), with areas of heathland recorded as Upland heathland and Lowland heathland depending on whether the area is enclosed (12.3% of the ESA).

3.2.27 Additional habitats were observed, particularly associated with areas either side of Slug Road, including: Blanket bog, Upland flushes, fens and swamp and Lowland heathland. These habitats are indicative of the change in landscape, from lowland agricultural fields towards more upland areas of open ground and forestry plantation.

3.2.28 **Table 11.2.7: Summary of Habitats Recorded in Section E** below presents a breakdown of each habitat identified within Section E, its corresponding UK Hab and NVC code, and description. The final column highlights key areas where each habitat type was recorded.

3.2.29 SBL habitats recorded within Section E are:

- Lowland heathland (0.4 ha, <0.1% of the ESA);
- Upland heathland (143.4 ha, 12.3% of the ESA);
- Ponds (Priority habitat; 0.1 ha, <0.1 of the ESA);
- Blanket bog (0.4 ha, <0.1% of the ESA);
- Purple moor-grass and rush pastures (1.3 ha, 0.1% of the ESA);
- Upland flushes, fens and swamps (2.8 ha, 0.2% of the ESA);
- Lowland mixed deciduous woodland (0.8 ha, 0.1% of the ESA);
- Upland birchwoods (6.4 ha, 0.6% of the ESA);
- Upland mixed ashwoods (0.5 ha, <0.1% of the ESA); and
- Wet woodland (3.1 ha, 0.3% of the ESA).

Table 11.2.7: Summary of Habitats Recorded in Section E[13]

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Cropland – Cereal crops	c1c	N/A	See Section A for habitat description.	This habitat was recorded identified south of the River Dee (NO 76621 96254).
Cropland – Non-cereal crops	c1d	N/A	See Section A for habitat description.	This habitat was recorded west of Mill of Mergie (NO 79200 88480).
Cropland - Temporary grass and clover leys	c1b	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Grassland – Bracken	g1c	U20	See Section A for habitat and NVC community description.	This habitat was recorded at the base of Craigneil Hill (NO 79054 89497).
Grassland – Modified grassland	g4	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Grassland – Other lowland acid grassland	g1d	U4	See Section C for habitat description.	This habitat was recorded north of Black Burn (NO 79287 8905) and within Free Church Wood (NO 77202 95152).
Grassland – Other neutral grassland	g3c	MG10	See Sections A and D for habitat and NVC community description.	This habitat was common and widespread throughout this Section.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Grassland – Upland acid grassland	g1b	U4	See Section A for habitat and NVC community description. The plant community within this Section included sweet vernal grass, Yorkshire fog, heath bedstraw, wavy hairgrass, devil's bit scabious (*Succisa pratensis*), and tormentil.	This habitat was recorded south of Toddie Brae (NO 79392 87759), and north of Slug Road (NO 79169 89302).
Heathland and shrub – Gorse scrub	h3e	W23	See habitat description in Section A.	This habitat was recorded near Slug Road (NO 79290 89243) and south of Burn of Sheeoch (NO 77433 94858).
Heathland and shrub - Lowland heathland	h1a	M15	A habitat generally found below 300 m in altitude, lowland heathland can be encountered in areas with more than 25% shrub cover[19]. The NVC community recorded in this habitat was M15, which develops over wet, shallow peaty soils where the original bog vegetation has been damaged or altered by management[21]. Bracken, gorse, bog myrtle (*Myrica gale*), *Sphagnum* spp., *Polytrichum commune*, cross-leaved heather (*Erica tetralix*), and deergrass (*Trichophorum germanicum*) were all present within this Section. Lowland heathland was also found in Section F.	This habitat was recorded north of Slug Road (NO 79092 89337).
Heathland and shrub - Mixed scrub	h3h	N/A	See habitat description in Section A. The mix of scrub in this Section was comprised of broom and gorse.	This habitat was recorded in limited extents in Fetteresso Forest, comprising gorse and broom scrub.
Heathland and shrub - Upland heathland	h1b	H9, H10, H12, M15, H22	See Section A for habitat description and further details on the NVC community H12. The NVC code M15 is discussed above in the *Lowland Heathland* habitat; the primary distinction between lowland and upland heathland is that upland habitats are unenclosed. Two more NVC codes were observed in this Section, H10 and H22. The key difference between H10 and H12 is the absence of blaeberry in H10. H22 is characterized by a higher proportion of crowberry (*Empetrum nigrum*) and *Sphagnum capillifolium* mixed with *Hylocomium splendens, Rhytidiadelphus loreus, Dicranum scoparium* and *Pleurozium schreberi*[21]. Heather dominated the landscape in this Section. Other species recorded included wavy hairgrass, bell heather, purple moor-grass	This habitat was recorded concentrated at the base of Craigneil Hill (NO 79009 89776), and in rides in Fetteresso Forest (NO 79407 86715) and Durris Forest (NO 78426 93527).

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
			(*Molinia caerulea*), fescue, Yorkshire fog, bog myrtle, cross-leaved heather, and Sitka spruce.	
Rivers and Lakes – Natural lake or pond	r1	N/A	See Section A for habitat description.	A pond was noted to the east of an existing forest track in Fetteresso Forest (NO 76441 86547).
Rivers and Lakes - Ponds (Priority habitat)	19	N/A	A pond was recorded associated with a quarry adjacent to the River Dee. Access was not possible due to active quarry workings, but the pond was observed from a distance and considered to have potential to qualify as the SBL priority habitat type.	This habitat was recorded north of the River Dee (NO 76946 96980).
Wetland – Blanket bog	f1a	M17	Blanket bog develops very slowly over time, accumulating peat through the partial decomposition of plant material under waterlogged and anaerobic conditions. It typically forms over acidic soils or bedrock and varies in depth from 0.5 to 3 m[31]. The M17 NVC community is classified as an ombrogenous mire, a globally rare habitat that holds significant importance for conservation efforts[21]. Most common plant species found in this habitat within the ESA are heather, bog-mosses *Sphagnum* spp., cottongrasses (*Eriophorum* spp.), purple moor-grass, cross-leaved heath and deergrass.	This habitat was recorded south of Slug Road (NO 79307 89234).
Wetland – Purple moor-grass and rush pastures	f2b	M23, M25	The habitat and the NVC community M23 have been described in detail in Section B. M25 is distinguished from other habitats by its tall swards of purple moor-grass, which create small niches for other species to establish between older tussocks. The M25 community is found in areas where woodland may have once existed or where there is potential for it to regenerate[21]. Plant species found in this Section were purple moor-grass, heather, *Rhytidiadelphus squarrosus,* blaeberry, and wavy hairgrass.	This habitat was recorded in Fetteresso Forest (NO 79400 87811), south of Slug Road (NO 79255 89262 and NO 79373 89136), along the existing track into Fetteresso Forest (NO 79013 89290) and west of Craigneil Hill (NO 78888 90461).
Wetland – Upland flushes, fens and swamps	f2c	M6	Upland flushes and springs are typically small features that either emerge from a distinct springhead or seep through surrounding vegetation. Where the substrate remains impermeable downslope,	This habitat was noted in Fetteresso Forest (NO 79541 86741) in a ride within a Sitka spruce plantation, along the Burn of Day (NO 80105

[31] JNCC, 1994. *Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups*. Chapter 8 Bogs. JNCC, Peterborough. [Online] https:/data.jncc.gov.uk/data/20534790-bb45-4f33-9a6c-2fe795fb48ce/SSSIs-Chapter08.pdf.

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
			the vegetation is strongly influenced by the mineral composition of the underlying rock[18]. The NVC community recorded in this habitat was M6, a soligenous mire with a thick layer of *Sphagnum* species. Common plant species include soft rush, *Sphagnum palustre, Sphagnum capillifolium*, marsh thistle, and tufted hairgrass.	86785), and in Durris Forest in a clearing to the west of Little Shiel Hill (NO 79461 91534).
Woodland and forest - Felled	53	N/A	See Section B for habitat description.	This was a common habitat within this Section, active felling being conducted in Fetteresso Forest (NO 79081 87273) and Durris Forest (NO 79206 91737) at the time of survey.
Woodland and forest - Lowland mixed deciduous woodland	w1f	W10	See Section B for description of the habitat, NVC code, and associated plant species.	A small extent of this habitat type was recorded in an Ancient Woodland (of semi-natural origin) at Free Church Wood (NO 77351 95242).
Woodland and forest - Other coniferous woodland	w2c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Woodland and forest - Other Scots pine woodland	w2b	N/A	See Section A for habitat description.	This habitat was recorded in several coupes in Fetteresso Forest.
Woodland and forest - Other woodland; broadleaved	w1g	N/A	See Sections A and B for detailed descriptions of the habitat and associated plant species.	This habitat was common and widespread throughout this Section.
Woodland and forest - Other woodland; mixed	w1h	N/A	See Section A for habitat description.	This habitat was recorded south of Slug Road (NO 79198 89044) and north of River Dee (NO 76595 96859).
Woodland and forest – Upland birchwoods	w1e	W11	See Sections A and B for detailed descriptions of the habitat, NVC code, and associated plant species.	This habitat was recorded south of Slug Road (NO 79377 89029; including a small extent of Ancient Woodland (of semi-natural origin)), along the Burn of Sheeoch (NO 77440 94895), and at Kirkton Wood (NO 77384 95462; Ancient Woodland (of semi-natural origin)).
Woodland and forest - Upland mixed ashwoods	w1b	W9	See Section B for detailed descriptions of the habitat, NVC code, and associated plant species.	This habitat was recorded adjacent to the Burn of Sheeoch (NO 77229 94784).

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Woodland and forest – Wet woodland	w1d	W4	See Section B for habitat description. The NVC community W4 forms on moderately acidic, moist, sometimes peaty soils[29]. The most common tree species recorded in this Section was birch, and the ground cover consisted of plant species such as bog myrtle, purple moor-grass, soft rush, cross-leaved heath, and cottongrasses.	This habitat was recorded south and north of Slug Road (NO 79290 89243 and NO 79004 89479).
Urban – Artificial unvegetated, unsealed surface	u1c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Developed land; sealed surface	u1b	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Suburban/mosaic of developed/natural surface	u1d	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban - Vacant/ derelict land/ bare ground	u1 (351)	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Vegetated garden	231	N/A	See Section A for habitat description.	This was a common habitat across the ESA.

Section F

3.2.30 Section F extends from West Park to Kintore, passing through Newhall, West Cullery and Kinnernie Burn. A total of 27 UK Hab communities were recorded in this Section, and within these a total of 24 NVC communities were recorded.

3.2.31 Cropland and modified grassland accounted for 67.9% of the habitats recorded within the ESA. Woodland habitats comprised 15.7% of the ESA, the majority of which were non-SBL woodland habitat types (13.7%).

3.2.32 **Table 11.2.8: Summary of Habitats Recorded in Section F** below presents a breakdown of each habitat identified within Section F, its corresponding UK Hab and NVC code, and description. The final column highlights key areas where each habitat type was recorded.

3.2.33 SBL habitats recorded within Section F are:

- Lowland dry acid grassland (3.1 ha, 0.2% of the ESA);

- Lowland heathland (7.8 ha, 0.4% of the ESA);
- Lowland fens (4.5 ha, 0.2% of the ESA);
- Purple moor-grass and rush pastures (22.5 ha, 1.2% of the ESA);
- Lowland mixed deciduous woodland (1.9 ha, 0.1% of the ESA);
- Upland birchwoods (21.9 ha, 1.1% of the ESA); and
- Wet woodland (14.6 ha, 0.8% of the ESA).

Table 11.2.8: Summary of Habitats Recorded in Section F[13]

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Cropland – Cereal crops	c1c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Cropland – Non-cereal crops	c1d	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Cropland - Temporary grass and clover leys	c1b	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Grassland – Bracken	g1c	U20	See Section A for habitat and NVC community description.	This habitat was recorded scattered throughout this Section, including examples west of Lochwood Cottage (NO 77392 98639) and in Myriewell Wood (NJ 74907 05858).
Grassland – Lowland dry acid grassland	g1a	U2, U4	Refer to Section B for details on the habitat and a description of the U4 NVC community. U2 was also observed in this Section, typically found on valley sides and slopes with free-draining soils. It represents a lowland to sub-montane vegetation type and is often the first stage of recolonizing vegetation in felled conifer plantations[21]. Plant species identified within this NVC community included wavy hairgrass, creeping soft grass, heath bedstraw, *Pleurozium schreberi, Hylocomium splendens,* and false oat-grass.	This habitat was recorded scattered throughout this Section, notably around Braigies Moss (NJ 75700 04635) and Firley Moss (NJ 75934 12829).
Grassland – Modified grassland	g4	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Grassland – Other lowland acid grassland	g1d	N/A	See Section C for habitat description.	This habitat was recorded within Myriewell Wood (NJ 74975 06234).

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
Grassland – Other neutral grassland	g3c	MG1, MG9, MG10, MG13	See previous Sections for habitat and NVC communities description. MG13 was also recorded in this Section, a community that occurs on silty, circumneutral, moist soils[30]. Plant species identified within this habitat include soft rush, Yorkshire fog, creeping buttercup, cock's foot, creeping bent, and false oat-grass.	This habitat was common and widespread throughout this Section.
Heathland and shrub – Gorse scrub	h3e	W23	See Section A for habitat description.	This habitat was recorded scattered throughout this Section, including examples west of Quartains Moss (NJ 76986 01686) and north of Schoolhill (NJ 76210 03657).
Heathland and shrub - Lowland heathland	h1a	M15	See Section E for full description of habitat and NVC community. In this Section, heather, sedges, and young downy birch dominated the landscape, accompanied by *Hylocomium splendens*, heath bedstraw, wavy hairgrass, blaeberry, and *Sphagnum* spp.	This habitat was recorded in an open area of Braigies Moss (NJ 75582 04663).
Heathland and shrub - Mixed scrub	h3h	N/A	See Section A for habitat description. The mix of scrub in this Section consisted of gorse, broom, bramble, and raspberry (*Rubus idaeus*). Other species included rosebay willowherb, common nettle, cow parsley (*Anthriscus sylvestris*), rowan, and elder.	This habitat was recorded southeast of Landerberry (NJ 75120 04218) and northwest of Myriewell House (NJ 74364 06405).
Wetland – Lowland fens	f2a	M6, S10	See Section B for habitat description. The NVC communities identified in this Section were M6 and S10. S10 included water horsetail, marsh valerian, meadow buttercup (*Ranunculus acris*), cuckooflower, and purple marsh orchid (*Dactylorhiza purpurella*). M6, on the other hand, featured a distinct assemblage of species such as common sedge (*Carex nigra*), wavy hairgrass, soft rush, tufted hairgrass, water horsetail, marsh thistle, heath bedstraw, and *Sphagnum fallax*.	This habitat was recorded at Loch of Park (NO 77260 98915), at Braigies Moss (NJ 75386 04955 and NJ 75489 04730), and to the west of Kintore Substation (NJ 76489 14247).
Wetland – Other swamps	f2f	S28	In this habitat, the water table remains at or above ground level for most of the year, creating wet conditions[19]. In this Section, S28 was dominated by reed canary grass. Other plant species included marsh valerian, nettle, grey willow, and marsh thistle.	This habitat was recorded to the west of Kintore Substation (NJ 76292 14158).
Wetland – Purple moor-grass and rush pastures	f2b	M23	See Section B for detailed descriptions of the habitat, NVC code, and associated plant species.	This habitat was recorded at Loch of Park (NO 77395 98831), Quartains Moss (NJ 77303 0203), north of the Gormack Burn (NJ 77326 02340), Little Finnercy (NJ 76318 03660), near

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
				Westerton (NJ 76032 03386), Braigies Moss (NJ 75501 04649), Bogendinnie (NJ 74905 10887), adjacent to the Bogendinny Burn (NJ 75066 10731 and NJ 75141 10745), Firley Moss (NJ 75799 12821), and east of Drum Hill (NJ 76463 12621).
Woodland and forest – Lowland mixed deciduous woodland	w1f	W10	See Section B for detailed descriptions of the habitat, NVC community, and associated plant species.	This habitat was observed in an Ancient Woodland (of semi-natural origin) north of Culfosie (NJ 73529 07762), and west of Kintore Substation (NJ 76496 14269).
Woodland and forest - Other coniferous woodland	w2c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Woodland and forest - Other Scots pine woodland	w2b	N/A	See Section A for habitat description.	This habitat was recorded scattered throughout the Section; notable examples include North Kirkton Wood (LEPO; NJ 75105 05304), Myriewell Wood (LEPO; NJ 74884 05860) and Tillybrig Wood (LEPO; NJ 73952 09485).
Woodland and forest - Other woodland; broadleaved	w1g	N/A	See Sections A and B for detailed descriptions of the habitat, NVC code, and associated plant species.	This habitat was widespread throughout this Section.
Woodland and forest - Other woodland; mixed	w1h	N/A	See Section A for habitat description.	This habitat was recorded scattered throughout this Section; notable examples include Springfield Wood (LEPO; NJ 74383 08304) and east of Firley Moss (NJ 76340 12813).
Woodland and forest - Upland birchwoods	w1e	W11	See Sections A and B for detailed descriptions of the habitat, NVC code, and associated plant species.	This habitat was recorded at Loch of Park (NO 77242 99026; LEPO), Braigies Moss and Backstrip Wood LEPO (NJ 75614 04744 and NJ 75649 04529), and Skene Moss (NJ 75254 10986).
Woodland and forest – Wet woodland	w1d	W1, W6, W7	See Section B for detailed descriptions of the habitat, NVC codes, and associated plant species.	This habitat was recorded scattered throughout this Section, generally associated with watercourses. Extensive areas were

Habitat Name	UK Hab Code	Associated NVC Communities[16]	Habitat Description	Key Areas
				recorded at Loch of Park SSSI (NO 77205 98814; a limited extent LEPO) and to the east of Loch of Park (NO 77308 98637). It was also recorded at Braigies Moss (NJ 75545 04617), the eastern side of Firley Moss (NJ 75902 12877), and west of Kintore Substation (NJ 76576 14359).
Rivers and Lakes - Natural lake or pond	r1	N/A	See Section A for habitat description.	A pond was recorded north of Schoolhill (NJ 76291 03476).
Urban – Artificial unvegetated, unsealed surface	u1c	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Developed land; sealed surface	u1b	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Suburban/mosaic of developed/natural surface	u1d	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban - Vacant/ derelict land/ bare ground	u1 (351)	N/A	See Section A for habitat description.	This was a common habitat across the ESA.
Urban – Vegetated garden	231	N/A	See Section A for habitat description.	This was a common habitat across the ESA.

3.3 Secondary codes

3.3.1 Secondary codes were recorded across the ESA to provide additional detail about the identified habitats, particularly with regards to land management and mosaics. The most commonly recorded secondary code used across the ESA was related to evidence of management practices on agricultural land (1166.9 ha, 13.7% of the ESA). This was followed by recording woodland management and origins (1123.6 ha, 13.2% of the ESA). Mosaics of vegetation, such as scattered trees, scrub or rushes, were also commonly recorded (792.7 ha, 9.3% of the ESA).

3.3.2 A list of secondary codes recorded is provided in **Table 11.2.9: Summary of Secondary Codes Recorded within the ESA**, with a brief description accompanying each group.

Table 11.2.9: Summary of Secondary Codes Recorded within the ESA

Secondary Habitat	UK Hab Code	Description
Built feature		
Ditch	191	Built features include a variety of man-made structures that contribute to the landscape's functionality and character. Ditches served as drainage features, dry stone walls acted to mark boundaries, and fences primarily functioned as barriers to control livestock movement. All man-made structures were very common across the ESA.
Dry stone wall	67	
Fence	69	
Road	111	
Freshwater		
Man-made	39	Freshwater waterbodies recorded within the ESA were divided according to whether they appeared natural or man-made.
Natural	41	
Management		
Agricultural land	1010	Management practices recorded within the ESA reflected a variety of land-use practices that influenced habitat structure and species composition. Burning was recorded in areas of Upland heathland and Blanket bog. Mowing and grazing were noted primarily in grassland and cropland, specifically Modified grassland and Temporary grass and clover leys. Management practices are often seasonally dependent and, therefore secondary codes recorded varied throughout the survey season.
Burnt	63	
Cattle grazed	59	
Grazed	58	
Horse grazed	61	
Mown	64	
Other grazed	62	
Sheep grazed	60	
Tall or tussocky sward	161	
Abandoned	78	
Active Management	75	
Ploughed	74	
Recent Management	76	
Unmanaged	80	
Tall or tussoky sward	161	
Moisture		
Seasonally wet	119	Moisture conditions across the ESA ranged from seasonally wet to permanently wet and waterlogged habitats. Where notable, surveyors recorded moisture levels in grassland, wetland and woodland and forest, to ensure a record of soil conditions, which can be useful in informing the selection of the NVC code.
Waterlogged	121	
Wet	120	
Inundation vegetation	122	
Mosaic		

Secondary Habitat	UK Hab Code	Description
Ruderal/ ephemeral	17	Complex mosaics of habitat features were often observed, characterised by a diverse mix of vegetation types and structural elements. The most common secondary code in this category was scattered scrub, found in many habitats but predominantly in grassland.
Rushes dominant	15	
Scattered bracken	12	
Scattered dwarf shrubs	13	
Scattered grass	189	
Scattered rushes	14	
Scattered scrub	10	
Scattered trees	11	
Scrub	330	
Tall herb	16	
Substrate		
Bare ground	73	Bare ground areas within the ESA are characterised by exposed soil, rock, or gravel, with minimal or no vegetation cover. Bare ground was associated with cropland, to highlight if the crop was harvested at the time of surveying.
Woodland		
Fallen dead wood abundant	147	Woodland habitats in the ESA were diverse, ranging from semi-natural to plantation stands. Plantation woodlands were very common, noted in 8.8% of all woodland recorded within the ESA. Some plantations were felled, which was recorded with an additional secondary code. The age and origin of trees was also recorded where apparent.
Felled	53	
Plantation	36	
Semi-natural woodland	37	
Woodland; broadleaved	341	
Woodland; mixed	342	
Woodland open space	166	
Young trees – planted	56	
Young trees – self-set	57	

3.4 Linear features

3.4.1 Linear features are narrow, elongated landscape elements that function as corridors and boundaries between other habitats. The most common linear features within the ESA were classified as 'Rivers – Other rivers and streams' (131.68 km). Rivers (Priority Habitat) comprised 12.97 km.

3.4.2 Hedgerows and treelines were recorded throughout the ESA, largely associated with field boundaries. The majority of hedgerows recorded were noted to be dominated by native species (totalling 20.42 km), with shorter extents of non-native hedgerow recorded (2.86 km). Treelines of various types were recorded (totalling 25.97 km), the majority of which were not specifically noted to either be ecologically valuable or to be associated with a bank or ditch (15.60 km).

3.4.3 **Table 11.2.10: Linear Habitat Features Recorded within the ESA** summarises all linear features encountered across the ESA and includes their corresponding UK Hab codes, descriptions, and key examples.

Table 11.2.10: Linear Habitat Features Recorded within the ESA

Habitat Name	UK Hab Code	Description	Key Examples
Hedgerows			
Native Species Rich Hedgerow Native Species Rich Hedgerow with trees	h2a	Hedgerows serve as boundaries, dividing roads, fields, and other habitats, holding value for many species and requiring active management to maintain their ecological status. Hedgerows classified as the SBL priority habitat type were recorded as Native Species Rich, and consist of at least 80% native species cover, are a minimum of 20 m in length, no more than 5 m in width, and have gaps no longer than 20 m[32]. Species identified in these hedgerows include hawthorn, blackthorn and bramble. Hedgerows may be associated with a bank or ditch.	Three records of the Hedgerows SBL priority habitat were recorded across the ESA. Two examples were noted in Section B: one recorded between an agricultural field and a strip of woodland north of Burnside the Meadows (NO 44589 55213), while the other sits north of Duns Wood, between two agricultural fields (NO 52267 62025). One example was recorded in Section C, between two agricultural fields south of Greenbottom Wood (NO 67359 72426).
Native Hedgerow Native Hedgerow with Trees	h2b	This category contains all other native hedgerows that are not classified as the SBL priority habitat type, and which may have larger gaps, be shorter in length and have less than 80% native species cover[19]. Species found in hedgerows across the ESA include oak, birch, hazel, sycamore, rowan, elder, bramble, and hawthorn.	Key examples include hedgerows on Couper's Road (NO 77561 98570) in Section F and north of Boggie Wood in Section B (NO 50223 61918).
Ornamental Non-Native Hedge	h2b	This habitat comprises hedgerows that are dominated by species that are not native to Scotland, such as beech. These hedgerows are often clipped and used for ornamental purposes, recorded as boundaries to areas of developed land.	This was a common habitat across the ESA.
Line of trees			
Line of Trees (Ecologically Valuable) Line of Trees (Ecologically Valuable) – Associated with bank or ditch	w1g6	Ecologically valuable lines of trees were recorded along field boundaries and the edges of roads and comprised lines of mature native species such as ash and oak. In addition, lines of mature, non-native beech were often recorded, and in many cases, these were assessed to be ecologically valuable due to their age, and as they offered shelter and foraging potential for a range of wildlife.	This was a common habitat across the ESA.
Line of Trees	w1g6	Further lines of trees were recorded along field boundaries, roads and associated with areas of developed land, and often comprised lines of	This was a common habitat across the ESA.

[32] NatureScot, n.d. Priority Habitat - Hedgerows. [Online] Available at: https://data.jncc.gov.uk/data/ca179c55-3e9d-4e95-abd9-4edb2347c3b6/UKBAP-BAPHabitats-17-Hedgerows.pdf.

Habitat Name	UK Hab Code	Description	Key Examples
Line of Trees – Associated with bank or ditch		young to semi-mature trees of varying native and non-native species.	
Watercourses			
Rivers and lakes – Rivers (Priority Habitat; Very High)	r2a	Rivers that qualify as the SBL priority habitat include rivers of high ecological status, headwaters, rivers that support Annex I habitat, chalk rivers, active shingle rivers, riverine Site of Special Scientific interest (SSSIs), and rivers supporting important species that are dependent on river habitat quality[33].	Within the ESA, the rivers that are known to satisfy the definition of the SBL priority habitat are: River Tay, River South Esk, River Dee, Cowie Water, and West Water.
Rivers and lakes – Other rivers and streams (High)	r2b	All other rivers and streams that do not meet the definition of the SBL priority habitat type are instead assigned to other rivers and streams.	Watercourses were common throughout the ESA, and varied from man-made field drains, to canalised watercourses, and semi-natural rivers. An example of a natural river is the Bervie Water (NO 75243 80839). Examples of canalised semi-natural watercourses include Black Burn (NO 68656 73152) and the Gormack Burn (NJ 77256 02273). Man-made field drains were present throughout the ESA.
Rivers and lakes – Other rivers and streams (Low)			

[33] NatureScot, n.d. Priority Habitat - Rivers. [Online] Available at: https://data.jncc.gov.uk/data/01d6ab5b-6805-4c4c-8d84-16bfebe95d31/UKBAP-BAPHabitats-45-Rivers-2011.pdf.

4 INTERPRETATION

4.1 Summary of Habitats

4.1.1 **Table 11.2.11: Summary of Area-Based Habitats Recorded in each Section within the ESA** and **Table 11.2.12: Summary of Linear Habitats Recorded in each Section within the ESA** summarise the habitats recorded within the ESA of each Section, and within the total ESA.

Table 11.2.11: Summary of Area-Based Habitats Recorded in each Section within the ESA[13]

Habitat Name	Section (ha within Section ESA / % of Section ESA)												Total ESA (ha / %)	
	A		B		C		D		E		F			
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
Cropland Habitats														
Cropland - Arable field margins	4.26	0.37	0.46	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**4.72**	**0.05**
Cropland - Cereal Crops	375.94	32.35	870.85	55.61	971.01	68.89	394.28	28.32	75.87	6.50	707.95	37.11	**3,395.91**	**39.47**
Cropland - Horticulture	0.00	0.00	0.00	0.00	0.00	0.00	16.05	1.15	0.00	0.00	0.00	0.00	**16.05**	**0.19**
Cropland - Non-cereal crops	99.42	8.55	82.27	5.25	72.82	5.17	253.89	18.24	3.43	0.29	57.33	3.01	**569.16**	**6.61**
Cropland - Temporary grass and clover leys	45.13	3.88	143.66	9.17	36.32	2.58	129.29	9.29	2.20	0.19	139.27	7.30	**495.86**	**5.76**
Grassland Habitats														
Grassland – Bracken	54.06	4.66	0.00	0.00	0.00	0.00	3.84	0.28	7.93	0.68	1.12	0.06	**66.95**	**0.78**
Grassland – Lowland dry acid grassland	0.00	0.00	2.53	0.16	0.00	0.00	0.00	0.00	0.00	0.00	3.06	0.16	**5.59**	**0.07**
Grassland – Modified grassland	186.73	16.07	211.60	13.51	34.06	2.42	261.26	18.77	109.86	9.42	389.83	20.43	**1,193.34**	**13.87**
Grassland – Other lowland	0.00	0.00	0.00	0.00	0.09	0.01	1.80	0.13	4.47	0.38	1.85	0.10	**8.20**	**0.10**

Habitat Name	Section (ha within Section ESA / % of Section ESA)												Total ESA (ha / %)	
	A		B		C		D		E		F			
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
acid grassland														
Grassland – Other neutral grassland	57.71	4.97	17.36	1.11	11.39	0.81	38.08	2.74	8.55	0.73	71.59	3.75	**204.68**	**2.38**
Grassland – Upland acid grassland	65.56	5.64	0.00	0.00	0.00	0.00	0.00	0.00	8.12	0.70	0.00	0.00	**73.68**	**0.86**
Heathland and Shrub Habitats														
Heathland and shrub – Gorse scrub	8.66	0.75	0.00	0.00	0.00	0.00	12.32	0.88	3.69	0.32	12.49	0.65	**37.16**	**0.43**
Heathland and shrub – Hawthorn scrub	0.00	0.00	1.61	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**1.61**	**0.02**
Heathland and shrub - Lowland heathland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.03	7.76	0.41	**8.16**	**0.09**
Heathland and shrub - Mixed scrub	10.24	0.88	0.00	0.00	0.13	0.01	1.43	0.10	2.19	0.19	0.92	0.05	**14.90**	**0.17**
Heathland and shrub - Upland heathland	167.67	14.43	0.00	0.00	0.00	0.00	0.00	0.00	143.42	12.30	0.00	0.00	**311.09**	**3.62**
Wetland Habitats														
Wetland – Blanket bog	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.03	0.00	0.00	**0.37**	**0.00**

Habitat Name	Section (ha within Section ESA / % of Section ESA)												Total ESA (ha / %)	
	A		B		C		D		E		F			
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
Wetland – Lowland fens	0.00	0.00	0.28	0.02	0.15	0.01	0.32	0.02	0.00	0.00	4.48	0.24	**5.23**	**0.06**
Wetland – Other swamps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	**0.02**	**0.00**
Wetland – Purple moor-grass and rush pastures	0.11	0.01	0.92	0.06	0.00	0.00	8.12	0.58	1.31	0.11	22.51	1.18	**32.96**	**0.38**
Wetland – Reedbeds	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.04	0.00	0.00	0.00	0.00	**0.50**	**0.01**
Wetland – Upland flushes, fens and swamps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.81	0.24	0.00	0.00	**2.81**	**0.03**
Woodland and Forest Habitats														
Woodland and forest - Felled	0.00	0.00	1.56	0.10	31.64	2.24	1.74	0.12	218.17	18.72	0.00	0.00	**253.11**	**2.94**
Woodland and forest – Lowland mixed deciduous woodland	0.00	0.00	1.47	0.09	0.00	0.00	0.00	0.00	0.84	0.07	1.85	0.10	**4.17**	**0.05**
Woodland and forest - Other coniferous woodland	16.11	1.39	7.57	0.48	20.85	1.48	110.80	7.96	373.82	33.07	136.03	7.13	**665.18**	**7.73**

Habitat Name	Section (ha within Section ESA / % of Section ESA)												Total ESA (ha / %)	
	A		B		C		D		E		F			
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
Woodland and forest - Other Scots pine woodland	3.77	0.32	6.66	0.43	14.25	1.01	0.39	0.03	4.88	0.42	55.00	2.88	**84.96**	**0.99**
Woodland and forest - Other woodland; broadleaved	3.37	0.29	52.57	3.36	45.01	3.19	22.89	1.64	20.16	1.73	41.41	2.17	**185.40**	**2.16**
Woodland and forest - Other woodland; mixed	5.54	0.48	25.77	1.65	49.30	3.50	19.91	1.43	17.68	1.52	28.83	1.51	**147.03**	**1.71**
Woodland and forest – Upland birchwoods	5.76	0.50	41.41	2.64	6.13	0.43	5.32	0.38	6.40	0.55	21.87	1.15	**86.90**	**1.01**
Woodland and forest – Upland mixed ashwoods	0.00	0.00	0.25	0.02	0.00	0.00	0.00	0.00	0.49	0.04	0.00	0.00	**0.74**	**0.01**
Woodland and forest – Wet woodland	0.00	0.00	12.54	0.80	3.50	0.25	2.47	0.18	3.09	0.26	14.59	0.76	**36.18**	**0.42**
Rivers and Lakes Habitats														
Rivers and Lakes - Natural lake or pond	1.02	0.09	0.81	0.05	0.24	0.02	0.39	0.03	0.07	0.01	0.18	0.01	**2.71**	**0.03**

Habitat Name	Section (ha within Section ESA / % of Section ESA)												Total ESA (ha / %)	
	A		B		C		D		E		F			
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
Rivers and Lakes - Ponds (Priority habitat)	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.01	0.00	0.00	**0.16**	**0.00**
Other Habitats														
Urban: various[34]	49.64	4.27	81.62	5.21	112.10	7.95	92.31	6.63	103.18	8.85	157.82	8.27	**596.66**	**6.94**
No Access[35]	1.50	0.13	2.20	0.14	0.59	0.04	14.76	1.06	42.09	3.61	29.94	1.57	**91.08**	**1.06**

Table 11.2.12: Summary of Linear Habitats Recorded in each Section within the ESA[13]

Habitat Name	Section (km)						Total ESA (km)
	A	B	C	D	E	F	
Watercourse Habitats							
Rivers and Lakes – Rivers (Priority Habitat; Very High)	1.92	3.35	2.61	0.00	5.09	0.00	**12.97**
Rivers and lakes – Other rivers and streams (High)	5.43	5.74	6.25	8.07	10.55	4.34	**40.38**
Rivers and lakes – Other rivers and streams (Low)	9.85	21.20	15.57	16.41	6.76	21.50	**91.30**

[34] The figures for Urban habitats incorporate a range of habitat types, including both vegetated and unvegetated land, and developed land such as associated with farms and houses. As these areas were not surveyed to a consistent level of detail, as they comprised private ground associated with businesses and dwellings, the figures are amalgamated for the purposes of reporting.
[35] These figures comprise areas of land for which access was not possible, and which could not be surveyed from adjacent accessible land (e.g. due to access refusals), or areas for which access was not requested (eg due to access track proposals resulting in a wider ESA than anticipated during survey planning).

Habitat Name	Section (km)						Total ESA (km)
	A	B	C	D	E	F	
Treeline Habitats							
Line of Trees	2.69	4.60	0.83	2.97	0.78	3.73	**15.60**
Line of Trees - Associated with bank or ditch	1.86	1.53	0.00	1.82	0.27	0.00	**5.48**
Line of Trees (Ecologically Valuable)	0.00	2.01	0.45	0.18	0.25	1.10	**3.98**
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.01	0.45	0.00	0.00	0.44	**0.90**
Hedgerow Habitats							
Native Hedgerow	3.79	0.98	1.75	2.51	0.31	1.73	**11.08**
Native Hedgerow with trees	0.49	2.99	0.96	0.80	0.34	1.92	**7.50**
Native Species Rich Hedgerow	0.00	0.48	0.62	0.50	0.00	0.00	**1.61**
Native Species Rich Hedgerow with trees	0.00	0.24	0.00	0.00	0.00	0.00	**0.24**
Hedge Ornamental Non Native	0.00	0.68	2.18	0.00	0.00	0.00	**2.86**

4.2 Habitats of Conservation Concern

4.2.1 The ESA is dominated by farmland ranging from largely arable farming in the south, to a greater prevalence of livestock farming in the north, with variable extents of conifer plantation and limited areas of upland habitat with evidence of grouse moor management. The majority of habitats within the ESA are therefore modified as a result of land management.

4.2.2 Area-based habitats of conservation concern recorded within the ESA are detailed in **Table 11.2.13: Habitats of Conservation Concern Identified across the ESA** below and are summarised as:

- Five Annex I habitats[36]:
  - H4010 Northern Atlantic wet heaths with *Erica tetralix*
  - H4030 European Dry Heaths
  - H7130 Blanket bog
  - H9180 *Tilio-Acerion* forests of slopes, screes and ravines
  - H91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*
- Fifteen SBL habitats[6]:
  - Thirteen area-based habitats (see table below)
  - Hedgerows
  - Rivers
- Eleven potential GWDTE communities[9]:
  - High potential: M6, M27, W4 and W7
  - Moderate potential: M15, M23, MG9, MG10, W1, W2 and W6

Table 11.2.13: Habitats of Conservation Concern Identified across the ESA

UK Hab classification	Associated NVC Community	Area within the ESA (ha)	Proportion of ESA (%)	Mechanism for Habitat Conservation Concern
Cropland – Arable field margins	N/A	4.72	0.05	SBL: Arable Field Margins
Grassland – Lowland dry acid grassland	U2, U4	5.59	0.07	SBL: Lowland Dry Acid Grassland
Heathland and shrub – Lowland heathland	M15, H9, H10, H12, M15	8.16	0.09	Annex 1: H4010 Northern Atlantic wet heaths with *Erica tetralix* Annex 1: H4030 European dry heaths SBL: Lowland/Upland Heathland Moderate Potential GWDTE (M15)
Heathland and shrub – Upland heathland		311.09	3.62	
Wetland – Blanket bog	M17, M19	0.37	0.00	Annex 1: H7130 Blanket bog SBL: Blanket Bog
Wetland – Lowland fens	M6, M27, S9, S10, S28	5.23	0.06	SBL: Lowland Fens High Potential GWDTE (M6) Moderate Potential GWDTE (M27)

[36] A list of Annex 1 habitats is available online: https://sac.jncc.gov.uk/habitat/ [Accessed June 2025].

UK Hab classification	Associated NVC Community	Area within the ESA (ha)	Proportion of ESA (%)	Mechanism for Habitat Conservation Concern
Wetland – Purple moor-grass and rush pastures	M23, M25	32.96	0.38	SBL: Purple Moor Grass and Rush Pastures Moderate Potential GWDTE (M23)
Wetland – Reedbeds	S26	0.50	0.01	SBL: Reedbeds
Wetland – Upland flushes, fens and swamps	M6	2.81	0.03	SBL: Upland Flushes, Fens and Swamps High Potential GWDTE (M6)
Woodland and forest – Lowland mixed deciduous woodland	W10	4.17	0.05	SBL: Lowland Mixed Deciduous Woodland
Woodland and forest – Upland birchwoods	W11, W16, W17	86.90	1.01	SBL: Upland Birchwoods
Woodland and forest – Upland mixed ashwoods	W9	0.74	0.01	Annex 1: H9180 *Tilio-Acerion* forests of slopes, screes and ravines SBL: Upland Mixed Ashwood
Woodland and forest – Wet woodland	W1, W2, W4, W6, W7	36.18	0.42	Annex 1: H91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (W6, W7) SBL: Wet Woodland High Potential GWDTE (W4, W7) Moderate Potential GWDTE (W1, W2, W6)

4.2.3 In addition, Native Species Rich Hedgerows were recorded across the ESA, totalling 2.85 km, which qualify as the SBL Hedgerows priority habitat type, and watercourses that qualify as the SBL Rivers priority habitat type were noted to comprise 12.97 km.

4.2.4 The habitats recorded were considered in relation to the LBAPs relevant to Angus[37] and Aberdeenshire[38]. Additional local priority habitats relevant to the ESA are:

- Angus:
  - Rivers and Burns
  - Ponds and Pools
  - Wet Grassland
  - Farm Buildings
  - Hedgerows and Treelines
  - Stone Dykes
  - Planted Coniferous Woodlands (woodland edges and glades)
- Aberdeenshire:

[37] Tayside Biodiversity Partnership, 2015. *Tayside Local Biodiversity Action Plan 2016-2026*. [Online] Available at: https://www.taysidebiodiversity.co.uk/action-plan/action-plan-new-lbap-2015/ [Accessed January 2025].
[38] North-East Scotland Biodiversity Partnership, n.d. *Biodiversity Information for Developers*. [Online] Available at: https://www.nesbiodiversity.org.uk/biodiversity-information-for-developers/ [Accessed January 2025].

- Rivers and Burns
- Lowland Wet Grasslands
- Lochs and Ponds
- Riparian Woodland
- Planted Coniferous Woodland
- Scrub
- Improved Grassland
- Semi-improved Acid Grassland
- Neutral Grassland
- Amenity Grassland

4.2.5 The most common Annex 1 habitat type within the ESA was H4030 European dry heaths comprising approximately 240.7 ha (2.8% of the ESA). H91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* was the second most common Annex 1 habitat type (69.2 ha, 0.8% of the ESA), followed by H4010 Northern Atlantic wet heaths with *Erica tetralix* (66.6 ha, 0.8% of the ESA) and H9180 Tilio-Acerion forests of slopes, screes and ravines (0.74 ha, <0.1% of the ESA). H7130 Blanket bog was the least common, comprising 0.5 ha (<0.1% of the ESA).

4.3 GWDTE

4.3.1 Eleven NVC communities were documented within the ESA which according to SEPA guidance[9] suggest potential groundwater dependency based on vegetation characteristics alone.

4.3.2 This information is summarised in **Table 11.2.11: Potential GWDTEs Recorded within the ESA**. The first column lists the recorded NVC communities that may indicate groundwater dependency. The second column outlines the potential for groundwater dependency as per the guidance.

Table 11.2.11: Potential GWDTEs Recorded within the ESA

NVC Community	Potential Groundwater Dependency[9]
M6 *Carex echinata - Sphagnum fallax/denticulatum* mire	High
M15 *Trichophorum germanicum - Erica tetralix* wet heath	Moderate
M23 *Juncus effusus/acutiflorus - Galium palustre* rush-pasture	Moderate
M27 *Filipendula ulmaria-Angelica sylvestris* mire	Moderate
MG9 *Holcus lanatus - Deschampsia cespitosa* grassland	Moderate
MG10 *Holcus lanatus - Juncus effusus* rush-pasture	Moderate
W1 *Salix cinerea - Galium palustre* woodland	Moderate
W2 *Salix cinerea - Betula pubescens - Phragmites australis* woodland	Moderate
W4 *Betula pubescens - Molinia caerulea* woodland	High
W6 *Alnus glutinosa - Urtica dioica* woodland	Moderate
W7 *Alnus glutinosa – Fraxinus excelsior – Lysimachia nemorum* woodland	High

4.3.3 Hydrogeological assessment was undertaken with regards to potential GWDTEs that may be affected by the Proposed Development. The results of the assessment of likely groundwater dependency, which has been verified through a hydrological survey, taking into account the actual on-site conditions, habitat composition, and topography, is presented in **Volume 5, Appendix 13.5: Groundwater Dependent Terrestrial Ecosystems (GWDTE) Assessment**.