



The Sirius Group

Craig Y Perchych, Swansea

Ecological Impact Assessment (EclA)

October 2023

FPCR Environment and Design Ltd

Registered Office: Lockington Hall, Lockington, Derby DE74 2RH

Company No. 07128076. [T] 01509 672772 [F] 01509 674565 [E] mail@fpcr.co.uk [W] www.fpcr.co.uk

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Rev	Issue Status	Prepared / Date	Reviewed / Date	Approved / Date
-	Draft	DJC / 21.10.22	APD / 14.12.22	APD / 14.12.22
	Final	DJC / 04.10.23		DJC / 04.10.23
A	Minor revisions	PJP / 06.10.23		

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1.0 EXECUTIVE SUMMARY

- 1.1 This Ecological Impact Assessment (EclA) report has been prepared by FPCR Environment and Design Ltd on behalf of Sirius Planning. It details the results of ecology Surveys undertaken at Craig Y Perchych; a full planning application for a 20MW solar farm.
- 1.2 Ecology surveys and survey updates were conducted in 2020, 2021, 2022 and 2023 and include Phase 1 and National Vegetation classification surveys; and species-specific surveys for invasive species, waxcaps, badgers, bats, breeding birds, reptiles, and otters. The results are detailed within this report. An outline ecological habitat management plan has also been submitted alongside this report.
- 1.3 The 67.7 ha site is comprised mostly of horse-grazed acid and/or neutral unimproved, semi-improved and poor semi-improved grassland fields, that were bounded by mature oak woodland, dry stone walls and earth banks. Areas of scrub, bracken, a small area of acid fen, and patches of dwarf heath shrub primarily along the walls, were also present.
- 1.4 Section 7 Habitats of Principal Importance (HPI) were present including lowland dry acid grassland, lowland meadows, purple moor grass and rush pasture, and upland oak woodland. Most of the Site forms part of Graid Ola-Cwm-cymach Site of Nature Conservation Interest (SNCI).
- 1.5 No evidence of badgers was found on Site.
- 1.6 Good numbers of common lizard (local value) were present within retained grassland and areas of scrub proposed for removal.
- 1.7 The breeding bird assemblage was of district value, with notable species recorded within the woodland as well as low numbers of skylark in fields with solar panels proposed.
- 1.8 The bat assemblage included a wide range of species typical for South Wales, including lesser horseshoe and greater horseshoe which were each assessed as district value.
- 1.9 No records of hazel dormouse were present within 2km of the site. This species is likely to be present in suitable habitat on and adjacent to the site, however, the proposals will have no impact on this species.
- 1.10 The proposed scheme retains almost all the habitat on-Site, but for small amounts removed for fencing and cabling. It also includes the proposal of new public footpaths and bridleways to divert and buffer footfall around the important habitat features.
- 1.11 Mitigation and enhancements have been proposed in the report, including the management of the grasslands and woodland and wildlife box installation. There will be no lighting on-Site to maintain connectivity and flyways for the bats recorded. Also included is the recommendation that conditions be attached to the consent for the submission of a Construction and Environmental Management Plan based on the recommendations in this report, and a finalised Ecological Management Plan.
- 1.12 Overall, the proposed scheme has been designed to provide and improve opportunities for biodiversity.

2.0 INTRODUCTION

- 2.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Sirius Planning to present the findings of an Ecological Impact Assessment and ecology surveys. It is for an application for full planning permission for a 20MW solar farm and associated cabling and access at Craig Y Perchych, Glais, Swansea SA7 9HS.

Scope of Assessment

- 2.2 This EclA has been based on the ecological impact assessment guidelines, published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018)¹. Evidence for the assessment was gathered through ecological surveys conducted in 2020 to 2023, which are detailed in this report. The surveys included a desk study, phase I habitat survey & preliminary protected species surveys, phase II habitat survey, badger, bats, breeding birds, reptiles, otter, blue ground beetle and marsh fritillary.
- 2.3 The application Site consists of three areas, the on-Site solar farm area (c.67.7 ha), an offsite HV cable run and a temporary set down area for construction and decommissioning. The cable run will be along an existing surfaced path, and so the impacts are mainly addressed within the Arboricultural Assessment, but the run was walked by an ecologist for signs of badger and non-native species.

Site description

- 2.4 The solar farm area was c.10km northeast of Swansea (OS Grid Ref SN 71658 01116) to the east of Glais. It is roughly bisected in a northeast/southwest orientation by an access road named Graig Y Pal from Glais, that became an informal farm track in the northeast of the site.
- 2.5 The western half of the site was primarily formed by a raised plateau known as Graig Ola. The plateau was given to remnant field compartments bounded by stone walls. The northern edge of the plateau was formed by a steep wooded slope which falls to the north. The slopes on Site to the south and east of the plateau were formed by a mixture of woodland and pastoral field compartments bounded by the woodland. Several minor tributaries of the Nant Y Cynnach river, located on the southern boundary, ran through the woodland. The Site was managed and grazed at the time of survey by ponies.
- 2.6 The habitats on site comprised mostly of acid and/or neutral unimproved, semi-improved, poor semi-improved grassland, upland oak woodland and marshy grassland/fen meadow. Areas of scrub, bracken, and dwarf heath shrub primarily along the drystone walls on the plateaux, were also present. Section 7 Habitats of Principal Importance (HPI) were present including lowland dry acid grassland, lowland meadow, Molinia fen meadow and upland oak woodland, and the majority of the Site formed part of Graid Ola-Cwm-Cymach Site of Nature Conservation Interest (SNCI).
- 2.7 The off-Site HV Cable area was located immediately southwest of the settlement of Glais (OS Grid Ref SN SN 69697 00379). It consisted of a sealed, tarmac footway/cycleway (approx. 3-5m wide) that continued south from Garth Road, eventually turning in a westerly direction. The route was lined by native trees on both sides. The route was bounded by agricultural pasture fields.

¹ Chartered Institute of Ecology and Environmental Management (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal.

- 2.8 The temporary set down area is located approximately 500m northwest of the main Site (OS Grid Ref SN 71090 01822) on a small farm. The area has a sealed track with access from Ynys Mond Road and consists of a small area of horse grazed pasture.

3.0 AIMS AND OBJECTIVES

Phase 1 Habitat and Preliminary Protected Species Survey

- 3.1 The aim was to conduct an extended Phase 1 Habitat and Preliminary Protected Species Survey of the application site using both a desk study and a walkover survey, to present and discuss the results and recommend any further surveys that may be required.
- 3.2 The objectives were to:
- Map the broad habitat types within the survey area,
 - Determine the presence or potential presence of legally protected, rare or otherwise notable species,
 - Assess the potential nature conservation importance of the recorded habitats,
 - Identify designated sites of nature conservation value; and
 - Identify the potential legal ecological constraints on development and propose any further surveys that may be required.

Further Protected Species and Phase II Surveys

- 3.3 The aim of further protected species and phase II surveys work was to build on the Phase I work to identify Importance Ecological Features and establish an ecological baseline to inform an Ecological Impact Assessment.
- 3.4 The objectives were to:
- Survey the site / suitable habitats using recommended survey guidelines where appropriate for each of the protected species / habitats identified for further survey during the Phase I Habitat and Preliminary Protected Species Survey.
 - Use the results and desk study data to determine the likely presence or otherwise of protected species, and if possible / appropriate estimate population size.
 - Determine the importance of the ecological features identified and assess the likelihood of the proposals adversely affecting the features to a level considered significant.
 - Produce an Ecological Impact Assessment (EclA) that presents the results and details appropriate mitigation and / or enhancements to reduce any potential significant effects identified to an acceptable level using the mitigation hierarchy (Avoid: Minimise: Compensate).

4.0 LEGISLATION

4.1 Detail on the relevant national policy and legislation for ecology in relation to development sites are provided in *Appendix A*. The national policy and legislation most relevant here are:

- The Conservation of Habitats and Species Regulations (“The Habitats Regulations”) (EU Exit) (Amendment) 2019 in relation to the European Protected Species (EPS) great crested newt, (GCN), bats (all species) and dormouse; and European protected sites i.e., Special Areas of Conservation (SAC), Special Protection Areas (SPAs) and Internationally protected “Ramsar Sites” (collectively known as “Natura 2000 sites”). Annex II bat species of particular relevance in relation to SACs designated for bats.
- The Wildlife and Countryside Act 1981 (WCA) (as amended) in relation to all wild birds (including Schedule 1 species), other animals (notably Schedule 5 species), flora (those listed in Schedules 8 and 9) and Sites of Special Scientific Interest (SSSI),
- Protection of Badgers Act 1992,
- Environment (Wales) Act (EW) 2016 in relation to various priority species and habitats,
- Hedgerow Regulations 1997 made under Section 97 of the Environment Act 1995,
- Planning Policy Wales (PPW) (2018),
- Local Nature Reserves (LNR) as designated most recently by the EW Act 2016,
- Non-statutory protected local sites including County Wildlife Sites (CWS), Sites of Importance for Nature Conservation (SINC), Local Wildlife Sites (LWS) and Ancient Woodland Inventory (AWI) sites,
- Local Biodiversity Action Plans (LBAP) i.e., Swansea Local Biodiversity Action Plan; and
- Birds of Conservation Concern 5 (BoCC5).

5.0 METHODOLOGY

Desk Study

- 5.1 To compile existing baseline information, relevant ecological information was requested from both statutory and non-statutory nature conservation organisations including:
- Y Lle- A Geo- Portal for Wales
 - Multi Agency Geographic Information for the Countryside (MAGIC); and
 - South East Wales Biodiversity Records Centre (SEWBRc).
- 5.2 Further inspection of colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) was also undertaken to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.
- 5.3 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:
- European Protected Sites - 10km search around the site for sites of International Importance (e.g., SACs, SPAs and Ramsar sites).
 - Nationally Protected Sites - 2km search around the site for sites of National Importance (e.g., SSSIs). Sites of importance outside of the 2km range may also be highlighted if a potential impact is likely.
 - Local Protected Sites - 1km search around the site for locally protected sites (e.g., LNRs).
 - Non-statutory Designated Sites - 10km search around the site.
 - Legally Protected and Notable Species - 1km search around the Survey Area.
- 5.4 When handling data species data:
- a) All results were filtered to include records from the previous ten years only (since 2012).
 - b) Results are plotted to identify any records falling within the site boundary.
 - c) The remainder of results are filtered, separating (from those listed in d.) all WCA Schedule 5 species, all likely breeding or over wintering WCA Schedule 1 birds, any EPS species, and any Nationally Rare and scarce plants.

Field Survey

Habitats/flora

Phase 1 Habitat survey

- 5.5 A field survey was conducted on 4th June 2020 on the Site, and the HV cable runs was walked on 3rd December 2021. An update walkover of the site was undertaken on July 28th 2022, and no changes in habitat types or conditions were recorded.

- 5.6 The survey was conducted using the methodology outlined in the Handbook for Phase 1 Habitat Survey (JNCC 2010)². This involved a systematic walkover of the site to classify the habitat types present (using the standardised Phase 1 Habitat classification system) and mapping these onto an OS base map. Each habitat was described based on the botanical merits and target notes used to record features of habitats of particular interest, as well as any sightings, evidence of, or potential for protected or notable species. A full botanical species list (*Appendix B*) was compiled during the survey, and a Phase 1 plan of all major habitat types produced (*Figure 3*). Where necessary, the abundance of species was quantified using the DAFOR scale, ranging from Dominant (>75%) to Abundant (75-51%), through Frequent (50-26%) and Occasional (25-11%) to Rare (10-1%).

Phase II Botanical Surveys

- 5.7 A combination of National Vegetation Classification sampling (NVC) and bespoke quadrat surveys were conducted on 28th July 2020 by an FPCR FISC level 4 botanist.
- 5.8 The NVC survey sampling of the vegetation was guided by the methodology detailed in the NVC Users' handbook and British Plant Communities Volume 3³.
- 5.9 Several discrete habitats were determined through the initial Phase 1 Habitat survey. Each was then surveyed by recording within a series of 2m x 2m quadrats that were placed within what were visually considered to be stands of homogenous vegetation.
- 5.10 Within each quadrat, all vascular and lower plant species were recorded and given a quantitative measure of abundance using the DOMIN scale as shown in *Table 1*.

Table 1: DOMIN Scale of cover/abundance

DOMIN SCALE	% COVER
10	91-100%
9	76-90%
8	51-75%
7	34-50%
6	26-33%
5	11-25%
4	4-10%
3	Several (10+) individuals
2	Many (4-10) individuals
1	Few (1-4) individuals

- 5.11 Additional information collected included:
- The position of each quadrat - determined using a handheld Global Positioning System (GPS) with an accuracy of within 3m; and,

² JNCC, (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit, ISBN 0861396367.

³ Rodwell, J.S., 1992. British plant communities. Volume 3. Grassland and montane communities. CUP, Cambridge.

- The average and maximum sward height, and the species forming the maximum height.
- 5.12 Additional sampling was undertaken across lower value grassland areas using random 1m x 1m quadrats. The information recorded was number of species present, percentage presence of undesirables, percentage *Lolium perenne*, and the percentage of sedges and flowering plants.

Analysis

- 5.13 NVC data gathered during the survey were analysed using a vegetation key, comparison of floristic tables and community descriptions and computer analysis (MAVIS⁴). This vegetation analysis software package provides a similarity coefficient for given NVC vegetation types which can then be analysed for the most likely community matches.

Invasive Plants, Notifiable Weed Species and Other Notable Flora

- 5.14 Consideration was given as to the presence of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA 1981)⁵ and the presence of any notable weeds including those covered under the Weed Act 1959⁶ (where population is significant enough to be considered injurious).
- 5.15 In addition, any rare or notable flora including those listed in the following policies as priorities were duly noted:
- Post 2010 UK Biodiversity Framework⁷ priority species;
 - EW S7 (Section 7 of the Environment (Wales) Act, 2016) priority species;
 - Swansea Local Biodiversity Action Plan (BAP) priority species;
 - International Union for the Conservation of Nature (IUCN) Red listed⁸ species;
 - Red Data Book (RDB)⁹ species; and
 - national, regional, county or vice-county (VC41 Glamorganshire) rarities.

Fungi

- 5.16 On 3rd August 2023, FPCR were alerted to the recording of date waxcaps *Hygrocybe spadicea* on the plateau a week prior by a third-party. Date waxcaps are a Section 7 Priority Species and have only recently been found in a select few locations in the country making them nationally rare. The season for waxcaps is August to November, but in exceptionally wet years they can fruit earlier in the season.
- 5.17 Following consultation with Swansea Council, the location was obtained and a site visit was conducted on 26th September to search and map any other specimens. The survey was conducted by two experienced FISC level 4 botanists from FPCR. Though not experienced mycologists, date waxcaps are distinctive and it is considered for this species their experience in botanical survey was sufficient to ensure a thorough search.

⁴ Dart Computing & Smart S. *Modular Analysis of Vegetation Information System (MAVIS)*. Centre for Ecology and Hydrology.

⁵ Act of Parliament, (1981). The Wildlife and Countryside Act 1981 (as amended), London: HMSO.

⁶ Act of Parliament. (1959). The Weed Act 1959. London: HMSO.

⁷ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). (2012). UK Post-2010 Biodiversity Framework. July 2012.

⁸ International Union for Conservation of Nature (IUCN). (2012). Red List 2012.

⁹ Cheffings, C.M. & Farrell, L. (Eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. (2005). The Vascular Plant Red Data List for Great Britain. Species Status 7: 1-116. Joint Nature Conservation Committee, Peterborough.

Fauna

- 5.18 A survey of the site for the presence of badgers was conducted on 4th June 2020 during the Phase one. A search for badger setts and signs was also conducted along the HV cable run on 3rd December 2021.
- 5.1 As part of the survey all hedgerows, woodlands, scrub, and other suitable habitats within the site and immediately adjacent to the site boundary, were searched for evidence of badger activity. The standard methodology was used, as outlined by Harris, Creswell, and Jefferies (1991)¹⁰. This involved a thorough search for evidence indicating the presence of badgers, including:
- setts, including earth mounds, evidence of bedding and runs between setts,
 - latrines, often located close to setts, at territory boundaries or adjacent to favoured feeding areas,
 - prints and paths or track ways,
 - hairs caught on rough wood or fencing; and
 - other evidence including snuffle holes, feeding, and playing areas and scratching posts.
- 5.2 The identification of snuffle holes, scratching posts or feeding signs on their own is not necessarily conclusive evidence of the presence of badgers. Several such signs may need to be seen in conjunction before they can be said to be conclusive of badger activity.

Bats

Bat Activity Scoping Surveys

- 5.3 Bat static detectors were deployed in July and August 2020. The aim of this survey was to ascertain the species present at the Site and record a general baseline of activity levels during peak months for bat activity. This will then be used for targeted enhancement proposals where necessary. Due to the low impact nature of the proposals, this level of survey effort was agreed to be appropriate with the LPA Ecologist.
- 5.4 Ten Static (passive) recording broadband detectors were deployed to record bat activity. These automated logging systems Wildlife Acoustics Inc. Song Meter SM4BAT FS detectors with SMM-U2 ultrasonic microphones, (herein referred to as SM4BAT detectors) save all recordings onto an internal storage device for analysis. The microphones used are highly sensitive and omnidirectional which record high quality data.
- 5.5 The SM4BAT detectors were positioned at locations that provide suitability for navigation/ foraging routes.
- 5.6 The devices were placed in a location for five nights of suitable and/or typical weather conditions. The units were programmed to activate 30 minutes before dusk and record continuously until 30 minutes following sunrise. The output from this was subject to analysis using the Wildlife Acoustic's Kaleidoscope software and was undertaken by experienced ecologists from FPCR Environment and Design Ltd.

¹⁰ Harris, S., Cresswell, P. and Jefferies, D., (1991). (Report) Surveying Badgers. The Mammal. Society, Bristol.

- 5.7 The analysis of the SM4BAT files recorded can highlight the presence of more than one bat if they are recorded simultaneously on the same sound file. However, it is not possible to determine whether consecutive sound files have been recorded as the result of a single bat passing the detector as it commutes across the landscape or by one bat repeatedly triggering the detector as a single bat registration. The number of bat registrations does, however, reflect the relative importance of the location of the detector by calculating the number of bat registrations per hour.

Breeding Birds

Scoping Visits 2020, 2021 & 2022

- 5.8 An initial bird scoping survey was conducted on 4th June 2020 by a suitably experienced ornithologist to ascertain the Sites' potential to support breeding WCA Schedule 1, Environment (Wales) Act 2016 (Schedule 7) species and/or BoCC Red or Amber list species. This was followed by two further visits on 26th May 2021 and 7th June 2022. The 2020 survey only recorded WCA Schedule 1, Environment (Wales) Act 2016 (Schedule 7) species and/or BoCC Red or Amber list species, while the 2021 and 2022 recorded all species. All visits were conducted prior to 11am and in suitable weather conditions (**Table 3**).
- 5.9 The survey methodology employed was broadly based on that of territory mapping (Bibby et al., 2000) as developed by the British Trust for Ornithology (BTO). Standard BTO species codes and symbols for bird activities were used to identify birds and denote activity, sex and age where appropriate.

Table 3: BBS scoping survey dates and weather conditions 2020,2021 & 2022

Date	Rain	Wind	Visibility
4 th June 2020	0	1-2	Good
26 th May 2021	0	2-3	Good
7 th June 2022	0	0-1	Good

Full Breeding Bird Surveys 2023

- 5.10 Following consultation from Natural Resources Wales which questioned survey effort, three breeding bird survey visits were conducted in April – June 2023. All surveys were started 1 hour after sunrise and in suitable weather conditions. Survey dates and weather conditions are showing in **Table 4**.

Table 4: BBS survey dates and weather conditions 2023

Date	Rain	Wind	Visibility
26 th April 2023	0	1-2	Very Good
24 th May 2023	0	0-1	Excellent
27 th June 2023	0	2-3	Good

5.11 The criteria used in the assessment of breeding birds has been adapted from the standard criteria proposed by the European Ornithological Atlas Committee (EOAC 1979)¹¹ and are grouped into three categories:

- *Possible breeder* e.g., birds observed in suitable habitat or singing male recorded,
- *Probable breeder* e.g., pair in suitable habitat, territory defended, agitated behaviour or nest building,
- *Confirmed breeder* e.g., recently fledged young observed, adult birds carrying food for young; and
- Birds that were considered to be not using the Site for breeding were categorised as *non-breeders* e.g., flying over the Site, migrant, habitat not suitable.

Hazel Dormouse

5.12 Desk study and habitat assessment during the Phase 1 habitat surveys was used to determine the suitability of the Site for dormice. Habitat suitability was then determined using the Dormouse Conservation Handbook¹² and professional judgement.

5.13 The habitat within the wider environment, distribution information taken from the desk study results and an online search for local information was conducted. This was then used to predict the likelihood of dormice being present on-Site within the wooded boundary features.

Reptiles

5.14 Presence/absence surveys were undertaken in 2022 in specific locations identified as offering potential habitat. Two areas (one in the west and one in the east) earmarked for scrub and bracken removal to facilitate solar panels were surveyed owing to their potential to support adder and other common reptiles.

5.15 Surveys were based on methodology detailed in the Herpetofauna Workers Manual (2003)¹³ and the Froglife Advice Sheet 10 (1999)¹⁴. The survey consists of seven survey visits in suitable weather conditions for recording reptiles. Methods involved a search for basking reptiles on/under naturally occurring and strategically positioned artificial refugia (0.5 x 0.5 metre roofing felt). These were placed in locations that offered the most suitable habitat for common reptiles, i.e., structurally diverse grassland habitats with areas of bare ground/short vegetation, wetland, or scrub features.

5.16 Artificial refugia were located within the Site in habitats considered most suitable for reptiles.

5.17 All survey visits have been undertaken in suitable weather conditions within the recommended survey period by suitably experienced FPCR ecologists. On each of these occasions the number of reptiles associated with each artificial refuge was recorded.

5.18 Surveys also followed the guideline recommendations by:

- approaching refugia downwind and avoiding casting a shadow and with care so as to not disturb basking animals when checking; and

¹¹ EOAC (1979). Categories of Breeding Bird Evidence. European Ornithological Atlas Committee.

¹² Bright, P., Morris, P., and Mitchell-Jones, T. 2006 *The Dormouse Conservation Handbook – second edition*. English Nature

¹³ Gent, T. and Gibson, S. (2003). Herpetofauna Workers Manual.

¹⁴ Froglife (1999). Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

- that when lifting and replacing the refugia, to check for the presence of reptiles underneath in hot weather is undertaken with care, to avoid potential harm or injury to animals beneath.
- 5.19 Any alternative basking material present within the Site (e.g., fallen deadwood, tipped and demolition materials etc) were also checked for the presence of reptiles.
- 5.20 Reptile populations were assessed in accordance with population level criteria as stated in the Key Reptile Site Register. This system classifies populations of individual reptile species into three population categories assessing the importance of the population (*Table 5*). These categories are based on the maximum total number of adult animals observed during an individual survey occasion across the seven or more surveys.

Table 5: Key reptile site survey assessment categories

Species	Low Population (No. of individuals)	Good Population (No. of individuals)	Exceptional Population (No. of individuals)
Adder	<5	5 - 10	>10
Common lizard	<5	5 - 20	>20
Grass snake	<5	5 - 10	>10
Slow worm	<5	5 - 20	>20

Otter

- 5.21 Following on from a Site meeting with the LPA Ecologist and discussion with the local rights of Way team, the potential for impacts on otter was raised in conjunction with proposals to install a new footbridge over the Nant Y Glais watercourse, a tributary of the river Tawe to the south east of the Site, as part of additional improvements to the local footpath network. The LPA ecologist recommended a precautionary survey for otter, due to the presence of potential features suitable as a couch resting site for this species in the footprint of the bridge works. Otter can have a home range of 20-30km of a single river section, although this is much smaller where high densities are present. This range includes smaller tributaries which are used to move between main river sections or for breeding sites away from more disturbed main river sections.
- 5.22 Survey for otter comprised the deployment of a camera trap on the potential rest site feature for a period of 6 weeks from 28th July 2022. The footage of this was then reviewed to confirm if otter were present or absent. A search of the river corridor for signs of otters, such as spraints, was also made for 200m either side of the potential couch feature.

InvertebratesBlue ground beetle

- 5.23 Blue ground beetle *Carabus intricatus* was thought to be absent from South Wales until a small population was discovered local to Glais in April 2012. The Site has habitat present suitable to support this species and therefore a survey was undertaken. Survey for this species is undertaken at night in suitable habitat. Adults climb trees and therefore a search by torchlight of tree trunks is effective. Specialist invertebrate surveyor David Boyce from Devon, the stronghold area for this species in England, undertook the survey for 6 hours on the 11th May 2022.

Marsh fritillary

- 5.24 Devil's bit scabious is present within 6 grassland field units. This is the larval food plant for the marsh fritillary *Euphydryas aurinia* butterfly. Survey for this species followed Butterfly Conservation Trust guidance note Ng2¹⁵, Monitoring marsh fritillary larval webs. Surveyors followed transect routes in each field unit, searching for larval webs created by the caterpillars of this species. Where present these were recorded on a plan. This was undertaken during the optimum period for recording larval webs in mid to late august and early September. The survey took place on 31st August 2022 and was undertaken by an invertebrate surveyor from FPCR.

Limitations And Assumptions

- 5.25 The species data collated for the desk study is derived from records submitted by members of the public and from specialist volunteer group surveys. It does not represent a definitive list of species that occur in the local area, and the absence of records does not necessarily imply absence of such species.
- 5.26 Two units recorded less than five nights during their deployment due to technical issues. It is considered that the data collected from these unit along with the remaining units have provided enough survey information to make a robust assessment of the bat species on-Site and to form an appropriate mitigation strategy.

¹⁵<https://ukbms.org/sites/default/files/downloads/UKBMS%20Ng2%20-%20Marsh%20Frit%20Webs%20guidance%20notes.pdf>

6.0 RESULTS

Desk Study

Statutory Designated Sites of Nature Conservation Interest

- 6.1 Three statutory designated sites were recorded within 10km of the site boundary.

Table 6: Statutory Protected Sites

Site Name	Proximity to site (approximate)	Description
Crymlyn Bog SAC & RAMSAR	4353m south	The 299.45 ha SSSI is a large lowland fen and wetland, composed of lowland topogenous fen supporting a diverse range of mire, tall-herb fen and swamp communities including calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> and transition mires and quaking bogs. In turn, these habitats support a suite of uncommon plant species and invertebrate fauna.
Forest Goch Bog, SSSI	1233m east	The SSSI is designated for its species rich lowland raised wetland. The bog forms one of Wales most scarce habitats and supports scarce plant species.
Glais Moraine, SSSI	777m west	The SSSI is a South Wales valley end-moraine and is thought to represent a retreat stage of the Late Devensian ice sheet.

Non-Statutory Sites of Nature Conservation Interest

- 6.2 Nine non-statutory sites, including SINC sites, Wildlife Trust Reserves, and NRW Priority Areas, were recorded within 2km of the Site, as listed in *Table 7* below.

Table 7: Non-statutory protected sites

Site Name	Proximity to site (approximate)	Description
Dyffryn Woods	240m east	This Wildlife site/SINC is one of the largest ancient woodlands in Wales, covering 233 ha.
Pandy Farm	980m north	Wildlife site
Swansea Canal	950m northwest	The Wildlife site is designated in recognition of its value for biodiversity and the local community.
Tawe Corridor	370m northwest	The River Tawe SINC is a wildlife corridor, designated for the habitat it provides to rarer species such as otter, herons, kingfishers, salmon, and trout.
Wildlife Trust Reserve	240m north	Wildlife Trust Reserve
NRW Priority Area (Woodland - PAWS)	240m east	NRW Priority Area (Woodland - PAWS)
Birchgrove Hill - Mynydd Drumau	310m south	This Wildlife Site is a mountain in south Wales situated on the border between Swansea and Neath Port Talbot.

NPT Watercourses	On-Site and east	This SINC site is unusual in that it is a 'generic' designation which covers all the watercourses that retain a natural form (i.e., not culverted). The SINC's small upland tributary streams are also considered as part of the SINC designation, meeting the criteria summarised in the <i>Guidelines for the Selection of Wildlife Sites in Wales</i> (Wales Biodiversity Partnerships 2008). A small area of the SINC boundary falls within the Site (1.9ha overlap).
Graig Ola - Cwm-cymach, Glais	On-Site	This SNCI covers an area of 186ha and its wide range of unusual habitats are owed primarily to its geomorphology.

Protected Rare and Otherwise Notable Species

6.3 All WCA, EPS and Nationally Rare species as defined in *Paragraph 5.4* are presented below in *Table 8*.

Table 8: Notable species records

Species	Conservation Status	Total Number of Records within 2km	Location / Minimum distance of records from site boundary
Mammals – bats			
Common Pipistrelle – <i>Pipistrellus pipistrellus</i>	EPS, WCA Sch5	2	610m
Daubenton's Bat – <i>Myotis daubentonii</i>	EPS, WCA Sch5	1	980m
Natterers Bat – <i>Myotis nattereri</i>	EPS, WCA Sch5	1	980m
Noctule Bat – <i>Nyctalus noctula</i>	EPS, WCA Sch5	2	660m
Pipistrelle Bat sp. (unknown) – <i>Pipistrellus sp.</i>	EPS, WCA Sch5	1	930m
Soprano Pipistrelle – <i>Pipistrellus pygmaeus</i>	EPS, WCA Sch5	2	610m
Myotis Species – <i>Myotis sp.</i>	EPS, WCA Sch5	3	610m
Birds			
Goshawk – <i>Accipiter gentilis</i>	WCA1.1, WCA9, CITES, LBAP (CLY, CON, POW, VOG)	1	460m
Kingfisher – <i>Alcedo atthis</i>	BD1, WCA1i	2	660m
Peregrine – <i>Falco peregrinus</i>	BDir1, WCA1.1, Bern, CITES, LBAP (ANG, CLY, CON, GWY, PEM, POW, TRF, VOG), LI(VC43)	2	On Site
Red Kite – <i>Milvus milvus</i>	BD1, WCA1i	2	700m

Species	Conservation Status	Total Number of Records within 2km	Location / Minimum distance of records from site boundary
Reptiles			
Grass Snake – <i>Natrix natrix</i>	Sect.41, UKBAP, WCA5/9.1k/l	2	431m

Status Key: EPS = European Protected Species. WCA = Wildlife and Countryside Act 1981 (as amended). Sch5 = Schedule 5 of WCA, Sch1 Schedule 1 of the Wildlife and Countryside Act, 1981.

Field Surveys

Habitats and Flora

- 6.4 A full Phase I description of the habitats present with photographs and full species list is provided in Appendix D and Phase 1 Plan (Figure 3).

Grassland, Marshy Grassland and Fen Meadow

- 6.5 The Site is a diverse mix of grassland habitats that are strongly influenced by its geomorphology. The grassland is currently grazed by ponies, which are having both a positive and negative impact. The horses are free to roam and there is evidence of grazing across the Site; however, the ponies clearly have a preference for certain areas, and in these areas nutrient input and selective grazing are having a negative impact on the grassland condition. The following grassland and marshy grassland habitats were identified, and a more detailed description is given below (and in Appendix D):

- Lowland acid grassland U4b (HPI)
- Lowland meadow MG5 (HPI)
- Molinia Fen Meadow (HPI)
- Semi-improved Acid Grassland
- Semi-improved neutral grassland
- Poor semi-improved grassland
- Improved Grassland

Plateau (F1 to F10)

- 6.6 The western extent of the Site is a steep outcrop and plateau of moorland character, consisting of ten fields divided by drystone walls. These fields (F1 to F10) were surveyed as part of the Phase I and Phase II. Despite its upland character, the outcrop is less than 300m high (209m) and therefore considered lowland. Most of this area is dominated by two habitats – dry acid grassland with ant hills and semi-improved neutral grassland. The former tended to be along the edges of the fields and more prevalent to the west, and the latter in the central field areas. Five 2m x 2m quadrats were conducted on both these habitat types for the NVC. The acid grassland supported seven acid grassland indicator species¹⁶, so was classed as unimproved. The National Vegetation Classification (NVC) output using MAVIS, showed it had a relatively high affinity (46%) with U4b *Holcus lanatus-trifolium repens* sub-community. This community is widespread and locally

¹⁶ <http://www.sewbrec.org.uk/content/attachments/SouthWalesWildlifeSitesCompleteDoc.pdf>

abundant in the upland fringes and is a community typically subject to low levels of agricultural improvement¹⁸. U4b under 300m is the HPI Lowland acid grassland.

- 6.7 The semi-improved neutral grassland was MG5 Lowland Meadow (58% affinity), also an HPI, but fairly abundant within the South Wales coalfields. Species-rich forms of U4a and U4b with strong affinities to MG5 have been recorded in Wales¹⁷, and this appears to be an example. The influence of grazing is evident. Ponies were present on both survey occasions and supplementary feeding occurred on one. The neutral semi-improved grassland habitat transitions from poor condition in the east (not MG5 in F10), to moderate condition in the central and west areas.
- 6.8 An additional 5x 1m² quadrats were conducted within this habitat to assess condition, and the results were as follows:
- Species per 1m²: 14.6 (based on 5x1m² quadrats).
 - Undesirable coverage: 13.5% (based on the NVC and 1m² quadrats combined).
 - Forbes coverage (excluding undesirables): 38.3%
 - Lolium: 0.7%
- 6.9 The species richness is low for MG5, but this may be typical of MG5 at this altitude in the area. The MG5 habitat would fail a JNCC Common Standards Monitoring condition assessment on account of agricultural species present above 5% (white clover and Yorkshire fog at 13%). Overall, there appears to be a probable decline in condition and biodiversity value occurring as a result of nutrient input and grazing, with a progression from the nutrient poor U4b/MG5, to a poor semi-improved grassland type. Given the shallow free draining soils and exposure, it's likely the grassland has the capacity to recover quickly with appropriate management.

Southern Fields (F11 to F17)

- 6.10 The southern fields (F11 to F17) consisted of small, enclosed fields, with mature sessile oak woodland and scrub forming the boundaries. These fields were surveyed in detail during the Phase I. The species composition of the semi-improved neutral grassland within F11, F12 and F13 was similar to the plateau, but likely more diverse, so has been classified as Lowland Meadow as well.
- 6.11 The most southern fields (F14, F15 and F16 and parts of F11 and F13) supported an area mapped as semi-improved acid grassland, and while not conditioned assessed, appear in good condition and of moderate species richness. These fields are the most distant from the areas the ponies spend most their time, and grazing is generally having a positive effect; however, the habitat may benefit from some rotational grazing to ensure enough seeding is occurring to increase species richness. This habitat wasn't assessed for NVC, but it appears not to be a typical semi-improved acid grassland community and was difficult to classify. It was most similar to a transitional form of M25b *Molinia caerulea*-*Potentilla erecta* mire, *Anthoxanthum odoratum* subcommunity, with some areas potentially closer to M24 *Molinia caerulea* - *Cirsium dissectum* fen-meadow; however, *Molinia* is mostly absent and *Cirsium dissectum* was only found in the F11 marshy grassland. Steven's *et al.*¹⁸ describe a habitat named *Agrostis canina* – *Carex* sp. Ag-Cx, of which this is similar, and is described as fairly frequently encountered and sometimes forming drier fringes to wetter fen habitats. This habitat has therefore been classified as the HPI *Molinia* Fen Meadow.

¹⁷<https://data.jncc.gov.uk/data/15a03fed-f306-4f01-9139-4933e814b9ec/CSM-LowlandGrasslandHabitats-2004.pdf>

¹⁸ Stevens et al. 20010 Grasslands of Wales. University of Wales press

- 6.12 The marshy grassland within F11 was likely an example of M24 *Molinia caerulea* - *Cirsium dissectum*, and F28 was also an example of Molinia Fen Meadow.
- 6.13 F17 and F25 were classed as semi-improved acid grassland.

Northern Fields (outside SNCI)

- 6.14 Most the fields immediately adjoining the non-SNCI fields have been mapped as poor semi-improved grassland (F21, eastern part of F24 and F25 (and F10 on the outcrop)). These fields vary but are “patchy” with areas of rank grassland, both in terms of areas dominated by grasses with few forbs or with a dominance of undesirables, and with areas that have either species-rich neutral grassland indicators or have indicators of acid grassland, particularly F25 and F24. These fields are being negatively affected by the current grazing regime and would benefit from efforts to reduce nutrients and from less intensive grazing. F26 and to a lesser extent F27 (which has scrub encroachment) have been mapped as semi-improved neutral grassland at present, but quadrat data yet to be assessed fully – this habitat is rabbit grazed and shorter in character than most on-Site.

Dwarf heath shrub

- 6.15 There were small areas of dwarf heath shrub along the edge of the Site and on walls predominantly on the plateau and the southern face of the plateau to the east. Scrub and bracken control within these areas, particularly the latter, would be of benefit.

Scrub/Bracken

- 6.16 Scrub is present in field parcels F1, F2, F3 F4, F6, F8, F9, F11, F13, F16, F17, F25 and F28. These were dominated by bracken *Pteridium aquilinum*, gorse *Ulex europaeus*, and bramble *Rubus fruticosus* agg. and also, *Salix* spp. in F28. The scrub within F17 and F28, and to a lesser extent F16 and F11, is having a negative impact on the grassland condition. The bracken encroachment within the dry acid grassland to the west of the plateau, especially F1, is similarly having a negative impact on condition.

Deciduous Oak Woodland

- 6.17 The steep sides of the plateau and stream valleys are vegetated with deciduous oak woodland, dominated by sessile oak *Quercus petraea*. This is an example of the HPI Upland Oak Woodland and is classified as Ancient Woodland. The ground flora is poor due to overgrazing and dominated by bramble.

Invasive Species

- 6.18 Japanese knotweed *Reynoutria japonica* was recorded in one restricted area in the north-eastern corner of the Site amongst scrub (See TN1 on Figure 3). As there is high likelihood that this will spread within the Site boundary if not appropriately treated, this is discussed further below.
- 6.19 Four large patches of Japanese Knotweed were present along the HV Cable run route. It is recommended that these are left untouched and in situ and care is taken when working in close proximity so as not to disturb them. It is possible that the digging of the route along the adjacent path will disturb rhizomes in these locations.

- 6.20 It is recommended that this work is conducted under the watching brief of an ecologist or Japanese knotweed specialist, and appropriate measures are taken if a rhizome is exposed. A method statement for this work will be detailed within the finalised CEMP.
- 6.21 Rhododendron was recorded on-Site located in the small area of woodland to the north of F24, there was also new shoots noted in woodland adjacent to the Site along the access road.

Fungi

- 6.22 No date waxcaps records were returned from the biodiversity records. It is understood the recent records have been submitted by the finders.
- 6.23 The waxcaps fruits from those discovered in late July had finished by the time the time this survey was conducted. No additional date waxcaps were recorded during the survey visit.

Badger

- 6.24 No signs of badger were recorded on Site nor along the HV cable run.

Bats

- 6.25 The following details the results of static monitoring of bat activity in 2020 with *Appendix C* showing a full table of results including peak counts, average bat passes per hour and total registrations. *Figure 4* shows the locations of all units.
- 6.26 Overall, during the surveys, a total of 12 bat species/species groups were recorded including (in order of abundance); common pipistrelle *Pipistrellus pipistrellus* (63.9% of activity), soprano pipistrelle *Pipistrellus pygmaeus* (27% of activity), *Myotis* Sp. (7.8% of activity), noctule *Nyctalus noctula* (0.5% of activity), *Nyctalus* Sp. (0.2% of activity), Pipistrelle Sp. (0.18% of activity), greater horseshoe *Rhinolophus ferrumequinum* (0.18% of activity), *Plecotus* Sp. (0.16% of activity), lesser horseshoe *Rhinolophus hipposideros* (0.05% of activity) *Nyctalus* Sp. / serotine (0.02% of activity) and serotine *Eptesicus serotinus* (0.01% of activity).
- 6.27 The unit with the highest assemblage of species was August 3 and 5 with nine species/species groups identified. Unit 3 was located in the broadleaved woodland between poor semi-improved grassland fields in the centre of the Site and unit 5 was located along the linear waterbody and scrub feature between the poor semi-improved and semi-improved grassland fields. July Units 1 and 5 located in the west and centre of the Site, had the lowest assemblage with only four species/species groups recorded. Two notable species were recorded, greater and lesser horseshoe bats.
- 6.28 Greater horseshoe bats were recorded over three units, the greatest number on July Unit 2 located along a treeline at the south of a poor semi-improved grassland field in the centre of the Site, with 15 registrations over the survey period and a peak of just six on any one day. The remaining two Units, July, and August Unit 3, both recorded 4 registrations over the survey period.
- 6.29 Lesser horseshoe bats were recorded over two units, the greatest number on August Unit 5 located in the east of the Site, with 5 registrations over the survey period and a peak of just 5 on any one day. August Unit 1 recorded just one lesser horseshoe registration over the survey period.

- 6.30 The highest activity of any species was noted on August Unit 3, with the majority of the 3078 registrations activity comprising of common pipistrelle and soprano pipistrelle. The lowest activity levels were located on July Unit 5 with 277 registrations.

Birds

- 6.31 Scoping survey results from the 2020, 2021, and 2022 breeding bird scoping surveys are presented in Figures 5, 6 and 7. The possible, probable and confirmed approximate territory locations of the April, May and June surveys conducted in 2023 are summarised on Figure 8. To reduce clutter, Figure 8 focusses on the 'notable' species that fall within and on the edge of field compartments, rather than within the woodland, except for wood warbler as the records may be of note. A full table of results for 2023 is provided in Appendix D.
- 6.32 A total of 18 species of 'notable' bird species (*Table 9*), i.e., listed as either Section 7 Priority species or as declining Red or Amber species as determined by the BoCC, were recorded across the site. The site broadly supports two distinct assemblages of birds, one associated with heathland/moorland on the plateaux and the other with semi-ancient sessile oak woodland.

Plateaux

- 6.33 The 'notable' species of the heathland/moorland assemblage were skylark (maxima eight singing male, twenty-two in total), meadow pipit (maxima five singing males) and linnet (estimated up to four pairs) were the main components of the breeding bird assemblage on the plateaux. Wheatear were recorded on two occasions (two June 2020 & three April 2023), a tree pipit was recorded in June 2020, and stonechat, willow warbler, dunnoek, song thrush and whitethroat were also present mainly within boundary vegetation. Other non-'notable' species included pied wagtail, goldfinch, wren, robin, blackbird and others, which were not present in significant number. There was also a high flyover curlew in 2021 not associated with the site.

Woodland

- 6.34 As the woodland will not be adversely impacted by the proposals, and will instead be managed long-term to improve condition, most the survey visits only focussed on the woodland edge. A more thorough survey was, however, conducted in April and May 2023. Two singing male wood warblers were present in May 2023, which is a notable and rapidly declining species associated in the UK predominantly with Atlantic oak woodland; a female pied flycatcher was recorded in May 2023; and willow warbler were present across the woods. Other 'notable' species recorded only during the scoping visits included a single spotted flycatcher and a lesser redpoll. Typical woodland assemblage species, including song thrush, mistle thrush, bullfinch, great spotted woodpecker, green woodpecker, treecreeper, and nuthatch were also present.

Other Notable Observations

- 6.35 Cuckoo were recorded in 2023 in April and May (up to three, although more than one not confirmed), and were frequently heard distantly across survey visits, including occasionally onsite during non-BBS surveys.
- 6.36 One or two singing male skylarks (no non-singing individuals) were present in the east of the site, most commonly associated with the northeastern boundary.

Table 9: All notable bird species recorded during bird scoping surveys 2020, 2021, 2022, and 2023

Species	Conservation Status (BoCC5 UK/BoCC4 Wales)	County Status
Linnet <i>Linaria cannabina</i>	BoCC Red List/ BoCC Red List	Common resident breeder, passage migrant and winter visitor.
Skylark <i>Alauda arvensis</i>	BoCC Red List/ BoCC Amber List	Common resident breeder, winter visitor and passage migrant.
Tree Pipit <i>Anthus trivialis</i>	BoCC Red List/ BoCC Red List	Common breeding summer visitor and passage migrant.
Meadow Pipit <i>Anthus pratensis</i>	BoCC Amber List/ BoCC Red List	Common resident breeder, winter visitor and passage migrant.
Whitethroat <i>Sylvia communis</i>	BoCC Amber List/ BoCC Red List	Common breeding summer visitor and passage migrant.
Song Thrush <i>Turdus philomelos</i>	BoCC Amber List/ BoCC Green List	Common resident breeder.
Curlew <i>Numenius arquata</i>	BoCC Red List/ BoCC Red List	Common winter visitor and passage migrant, scarce breeder in upland areas.
Mistle Thrush <i>Turdus viscivorus</i>	BoCC Red List/ BoCC Amber List	Common resident breeder.
Spotted Flycatcher <i>Muscicapa striata</i>	BoCC Red List/ BoCC Red List	Locally common breeding summer visitor and passage migrant.
Swift <i>Apus apus</i>	BoCC Red List/ BoCC Red List	Common breeding summer visitor and passage migrant.
Bullfinch <i>Pyrrhula pyrrhula</i>	BoCC Amber List/ BoCC Amber List	Common resident breeder.
Dunnock <i>Prunella modularis</i>	BoCC Amber List/ BoCC Amber List	Common resident breeder.
Lesser Black-backed Gull <i>Larus fuscus</i>	BoCC Amber List/ BoCC Red List	Common resident breeder, passage migrant and winter visitor, breeds on Flat Holm and on roof tops, mainly in Cardiff city centre but occasionally well inland.
Redshank <i>Tringa totanus</i>	BoCC Amber List/ BoCC Red List	Scarce and declining resident breeder at coastal sites, though common winter visitor and passage migrant.
Willow Warbler <i>Phylloscopus trochilus</i>	BoCC Amber List/ BoCC Red List	Common breeding summer visitor and passage migrant.
Wood Warbler <i>Phylloscopus sibilans</i>	BoCC Red List/ BoCC Red List	Scarce breeder.
Woodpigeon <i>Columba palumbus</i>	BoCC Amber List/ BoCC Green List	Common resident breeder, large flocks frequently noted on passage at coastal sites in late autumn.

Species	Conservation Status (BoCC5 UK/BoCC4 Wales)	County Status
Wren <i>Troglodytes troglodytes</i>	BoCC Amber List/ BoCC Green List	Common resident breeder.
Lesser Redpoll <i>Acanthis cabaret</i>	BoCC Red List/ BoCC Amber List	Locally common resident breeder, passage migrant and winter visitor.
Redstart <i>Phoenicurus phoenicurus</i>	BoCC Amber List/ BoCC Green List	Locally common breeding summer visitor, chiefly to upland woodlands, and passage migrant.

Dormouse

- 6.37 There were no records of dormice within 1km of the Site returned during the desktop study; however, the distribution of dormice in South Wales is not complete enough for the lack of records to be significant. High suitability woodland habitats are adjacent to the application Site and within the land outside the redline to be managed for biodiversity. The presence of dormice within the boundary habitats is considered possible.

Reptiles

- 6.38 The local records centre returned two grass snakes *Natrix helvetica* records from within 1km of the Site. The closest record was 431m to the west of the Site in 2015.
- 6.39 Although no reptiles or sloughed skins were observed during the Phase 1 survey, the survey identified suitable reptile habitat on Site consisting of the grassland, scrub, bracken as well as fen which formed a mosaic of basking, foraging and sheltering habitat.
- 6.40 The surveyed areas earmarked for scrub and bracken removal to facilitate solar panels recorded male, female, and juvenile common lizard. All recordings were from the southwest of the Site, a summary of which are tabulated below in *Table 14* and presented in *Figure 9*.
- 6.41 The highest adult count of common lizard from any one day was nine, based on *Table 4* the population of common lizard utilising the Site is classified as a “Good” population.

Table 10: Reptile survey results

Visit Number	Date	Weather	Species Recorded
1	25 th July 2022	<u>Start Time:</u> 13:30 <u>Temperature:</u> 14 <u>Cloud cover:</u> 80% <u>Wind:</u> 1-2 <u>Conditions:</u> overcast, bright	4 male common lizards 4 female common lizards 1 unknown adult common lizard 2 juvenile common lizards
2	29 th September 2022	<u>Start Time:</u> 09:48 <u>Temperature:</u> 12 <u>Cloud cover:</u> 30% <u>Wind:</u> 1-2	4 unknown adult common lizards

		<u>Conditions:</u> Bright, clear	
3	3 rd October 2022	<u>Start Time:</u> 11:00 <u>Temperature:</u> 16-17 <u>Cloud cover:</u> 30-40% <u>Wind:</u> 0 <u>Conditions:</u> Overcast, humid	2 unknown adult common lizards 2 juvenile common lizards
4	7 th October 2022	<u>Start Time:</u> 13:00 <u>Temperature:</u> 15-16 <u>Cloud cover:</u> 0-10% <u>Wind:</u> 0-1 <u>Conditions:</u> Clear and warm	2 unknown juvenile common lizards
5	12 th October 2022	<u>Start Time:</u> 12:00 <u>Temperature:</u> 16 <u>Cloud cover:</u> 20-60% <u>Wind:</u> 0-1 <u>Conditions:</u> Intermittent cloud, warm	1 adult unknown common lizard 2 juvenile common lizards
6	14 th October 2022	<u>Start Time:</u> 13:00 <u>Temperature:</u> 14-16 <u>Cloud cover:</u> 50-60% <u>Wind:</u> 0 <u>Conditions:</u> humid	1 adult grass snake 1 adult male common lizard 3 juvenile common lizard
7	17 th October 2022	<u>Start Time:</u> 11:30 <u>Temperature:</u> 17 <u>Cloud cover:</u> 0-20%% <u>Wind:</u> 0 <u>Conditions:</u> Bright, sunny warm	No reptiles

Otter

- 6.42 No records of otter were returned within 2km of the Site. No signs of otter were found during the riparian mammal survey completed on 28th July 2022.
- 6.43 Results from the camera trap found no evidence of use of the potential couch feature by otter but found one observation of American mink *Neovison vison* and two observations of polecat *Mustela putorius*.

- 6.44 One American mink was recorded on the camera trap. Mink are known to be present in the local Tawe River and historic records were returned from SEWBRC within 2km of the Site boundary. This species is invasive and listed on schedule 9 of the WCA.

Blue Ground Beetle

- 6.45 Surveys for blue ground beetle were undertaken on 11th May 2022. The initial reconnaissance survey suggested that it had considerable potential to support a population of the Blue Ground Beetle (BGB); the grazed Upland Oak Woodland in the north-eastern part of the wooded area looked especially suitable and was the primary focus of the subsequent night survey undertaken from approximately 2130 to 0030. The southwestern block of woodland, above the minor road up to Craig y Perchyll, also had some suitable areas of open oak woodland in the strip along the road, but much of it had too much bramble and holly in the field and shrub layer respectively to constitute optimal BGB habitat. Despite six hours being spent searching the trunks of trees, no BGB were recorded. The weather was reasonably warm and dry, but there had been some rain prior to our visit, and it was thought to be suitable for adult BGB activity. It therefore seems unlikely that there is a population of the species here, despite the presence of apparently suitable breeding habitat.

Marsh Fritillary

- 6.46 No larval webs for marsh fritillary were found during the August 2022 survey and therefore this species is likely to be absent from the Site.

7.0 DISCUSSION

Mitigation Measures Adopted as Part of the Proposals

Layout and General Design

- 7.1 Embedded within the proposed layout and design are the following design features that avoid impacts on ecological important features:
- Where solar panels are being installed, a buffer of a minimum 5m+ offset is present between the woodland edge and the security fence, with a minimum offset of 8m between the panels and woodland edge. This will ensure woodland and woodland edge is protected and retained.
 - All Areas of the higher value semi-improved acid grassland/Molinia Fen are to remain free from panels (F11, F13, F14, F15, and F28) except for the northern third of F16.
 - No lighting is proposed, aside from motion activated lighting for maintenance.
 - The landscape has been designed with no new planting to protect the existing native habitats.
- 7.2 A draft 40-year outline Ecological Management Plan has been prepared for the proposals, and it is recommended that a finalised version is conditioned by the LPA as part of the planning consent. This management plan detailed the following:
- All grassland, dry acid heath and Molinia Fen Meadow on on-Site will be managed with either a restore, maintain, or enhance management prescription. This will be achieved through a mixture of sensitive cutting regimes and low intensity conservation grazing.
 - Scrub and bracken will be removed from F1, F2, F3 F4, F6, F8, F9, F11, F13, F17 and F28 to improve the condition of the grassland. This will be achieved through mechanical removal and continued management through conservation grazing.
 - The AWI/Upland Oak Woodland will be fenced to remove all grazing pressure and allow the native understorey to re-establish. Conservation management will then be implemented through low intensity grazing at appropriate times.
 - Removal and monitoring of rhododendron and Japanese knotweed.
- 7.3 Whilst an outline CEMP has been prepared, a detailed version will be prepared for ecology and submitted prior to commencement on Site. The detailed CEMP will be submitted to specify methods to avoid impacts on all protected habitats and species present within the proposed works areas during construction and management to improve habitat features such as the grassland through scrub removal. This will include but not be limited to the following methods:
- Specification of appropriate access routes to avoid impacts on important habitats
 - Fencing of protected habitats including woodland to avoid impacts from works
 - Methods including Ecological Clerk of Works supervision and passive displacement to protect species such as reptiles
 - Citing of works compounds in non-sensitive areas
- 7.4 The CEMP will be proposed and secured through an appropriately worded condition included within planning approval.

Assessment of Effects

- 7.5 The infrastructure for the proposals will include access tracks, solar PV panels, security fencing and associated infrastructure such as cabling, inverters, and transporters. In addition, the development will provide an enhanced network of footpaths and access points surrounding the Site. This will result in minor losses of scrub and grassland, including unimproved acid grassland that is an HPI and within the Graig Ola – Cwm-cymach, Glais SNCI. Overall, the proposed habitat creation and enhancement through the 40-year management plan is predicted to increase the areas and/or value of HPI's within the scope of the proposals compared to the baseline.

Statutory Designated Sites

- 7.6 Crymlyn Bog SAC & RAMSAR (4.3km), Forest Goch Bog SSSI (1.2km) and Glais Moraine SSSI (0.8km) were all identified within the zone of influence. These Sites are all of national conservation importance. There are no significant ecological pathways from the proposed development that would likely cause a significant impact on these features. The overall effect of the proposals is negligible.

Non-statutory Designated Sites

Graig Ola - Cwm-cymach, Glais SNCI

- 7.7 87% of the Site falls within Graig Ola - Cwm-cymach, Glais SNCI, which is 32% of the total SNCI area (186 ha). The SNCI was verified during the Site of Importance for Nature Conservation project in 2013¹⁹. Most of the habitat on Site where PV Panels will be installed and that fall within the SNCI, was previously identified as unimproved acid grassland. The SNCI is of **County** importance.
- 7.8 Areas of the SNCI that fall within the Site boundary include HPI habitats such as unimproved acid grassland. As part of the proposals, a 40-year management strategy will be agreed with the LPA to enhance habitats on-Site that fall within the SNCI. This will include grassland areas and woodland. Enhancements will be achieved by appropriate grazing strategies that include fencing to exclude livestock from woodland to aid recovery. Specific grazing and cutting regimes will be introduced on grassland areas to enhance the structure and diversity of the swards, and there will be measures to reduce nutrient input. Overall, this is predicted to have a moderate beneficial impact on the status of all the SNCI habitats.

Other non-statutory sites

- 7.9 The proposals do not include any activity that will directly or indirectly impact habitats outside of the Site boundary. The proposals will have no impacts on the other nearby non-statutory designated sites and therefore an assessment of impacts is not applicable.

¹⁹ Swansea Council (2013), Sites of Importance for Nature Conservation Project for the City and County of Swansea

Habitats

Table 11: Habitat type and value

Habitat	Site area present ²⁰	Value
Lowland dry acid grassland U4b (HIP)	F1 and F6	County
Lowland meadow MG5 (HPI)	F2 to F9 and F11, F12 & F13	County
Molinia fen meadow and associated transitional habitat (HPI)	F11 and F28 (mapped as marshy grassland), and F11, F14, F15 and F16 (mapped as semi-improved acid grassland).	County
Semi-improved acid grassland	F17 and F25	Local
Poor semi-improved grassland	F19, F21, F22, F24	Site
Improved grassland	F18, F19, F20, F22, F22 and F23	Site
Atlantic Oak Woodland (HPI) also ancient woodland	Majority of woodland on site	National
Scrub	Various locations	Site

- 7.10 Lowland Dry Acid Grassland U4b and all Lowland Meadow MG5 present on the plateau, and an area of MG5 within F11, are proposed for PV panels. The remaining habitat areas proposed for PV are poor-semi-improved grassland and improved grassland. Almost all Molinia fen meadow and associated semi-improved acid grassland transitional habitat on-Site (F11, F13, F14 and F15) will be free from panels. The exception will be approximately one third of F16, which is proposed for panels, but will be managed through low-intensity grazing.
- 7.11 The temporary set down area off site consists entirely of close horse grazed improved grassland. The area will be used for up to 9 months during the construction phase. The field will be grazed again post construction. There will be no impacts on wider biodiversity and no mitigation or management is required.
- 7.12 All grassland areas on-Site, including those with and without proposed PV panels, will be included within a detailed Ecological Management Plan which can form a planning condition. This will be based on the outline ecological management strategy prepared for this application. The strategy includes the fencing of fields so that the grazing regimes can be managed and monitored closely. The strategy will propose a conservation grazing regime with sheep that allows the recovery and

²⁰ Please see appendix D

improvement of lower value areas and maintenance and improvement of the HPI grassland habitats present. The management plan also specifies the removal of scrub within grassland areas and scrub encroaching the periphery of these fields. This includes bramble, bracken and willow. Monitoring will be undertaken initially in years 1, 3 and 5 to ensure the grassland condition improves throughout and that changes can be made where appropriate. There will be no nutrient input on-Site over the life of the scheme.

- 7.13 It is predicted that over the 40-year life of the scheme, the effect of the scrub/bracken removal, the proposed sensitive grazing and cutting management, and the gradual leaching of nutrients across the Site, will lead to an overall increase in extent and condition of the grasslands across the Site at decommission.
- 7.14 The detailed Ecological Management Plan will also include fencing off all woodland areas to remove the existing high grazing pressure. This will allow for the ground flora and understory to recover and prevent excess tree deaths from livestock damage. Management grazing and/or thinning will be implemented where necessary to prevent over dominance of bramble and any other unwanted species to promote the ground flora recovery. Rhododendron removal will also be undertaken. Monitoring of woodland will be undertaken in years 3 and 5 after fencing and then every 5 years, with the management strategy changed based on the monitoring results.
- 7.15 It is predicted that proposed management strategy will have a moderate beneficial effect on the grassland meadow and woodland habitats on-Site at the county level, which will be significant.

Japanese Knotweed

- 7.16 One small stand of Schedule 9 Japanese knotweed (c. 5m x 7m) was recorded in the north-eastern section of the scrubland (TN1) in 2020. In 2022, the plant remains in the area.
- 7.17 Japanese knotweed is a notifiable weed and it is illegal to cause the plant to spread. Japanese knotweed is not known to set seed in the UK and it's spread is thought to be entirely down to the transporting of plant material by humans. Even very small pieces of plant material will readily take root and grow. When a plant is established, underground rhizomes will spread vigorously and can be damaging to properties.
- 7.18 Under advice from an independent Japanese knotweed specialist contractor, the knotweed is currently being assessed until appropriate action is determined. Details will be provided within the CEMP to ensure it is safely removed and no spread of this plant occurs during construction.
- 7.19 Further long-term monitoring for the presence Japanese knotweed in the area cleared and across the-Site will be included within the EMP. If Japanese knotweed is later recorded, it should be dealt with following standing UK government advice²¹. Please also see Welsh Government advice for more detail on control in construction and landscape.²²
- 7.20 The removal and ongoing monitoring of Japanese knotweed on Site, is predicted to be minor to moderate beneficial.

²¹ <https://www.gov.uk/guidance/prevent-japanese-knotweed-from-spreading>

²² Cymru (2011). The Control of Japanese Knotweed (*Fallopia japonica*) in Construction and Landscape Contracts

Fungi

- 7.21 Waxcap were recorded on the plateaux in late July by a third-party. No further date waxcaps were recorded during the survey visit by FPCR in September, but this does not mean more are not present given the short window when the species is fruiting. The species does not have legal protection but is a Section 7 Priority Species and is **nationally rare**. Other notable fungal species may also be present on site, as would be expected in association with the HPI habitats present.
- 7.22 Date waxcaps are known to prefer unimproved grassland that is grazed, and this and associated fungal species would be vulnerable to significant changes in habitat type including reduced grazing. As the proposals aim to maintain the higher value habitats and increase their extent over the 40-year life of the scheme, it is not predicted there will be a significant adverse effect on date waxcaps nor other fungal species that may be present.

Badgers

- 7.23 No evidence or signs of badger were recorded during the field survey of the Site nor HV cable run, therefore the Site is of **negligible** importance for badger and no further assessment is necessary. Given that suitable habitat is present at the Site, and considering the transient nature of badger populations, it is recommended that an update badger survey is carried out immediately prior to construction works beginning.

Bats

- 7.24 A total of 22 records of bats were returned from within 2km of the Site during the desk study. The 7 confirmed species recorded were common pipistrelle, soprano pipistrelle, noctule, brown long eared, serotine and lesser horseshoe (three records), along with species of the genus *Myotis*.
- 7.25 At least 12 species of bat were recorded on Site during the automated surveys. These included common pipistrelle, soprano pipistrelle, noctule, and serotine identified to species level along with the Annex II species lesser horseshoe and greater horseshoe. *Myotis* sp., *Nyctalus* sp., *Nyctalus* Sp. / serotine Pipistrelle Sp. and *Plecotus* Sp., were identified to genus only due to the difficulty distinguishing the echolocation of these species' groups. All the species recorded are widespread in south Wales, and their presence on Site per se is not significant.
- 7.26 Based on the species present and activity levels, the Site was considered as no more than **Local** importance for bats, with the exception of lesser horseshoe and greater horseshoe due to their higher national status as Annex II bats. Each of these are discussed separately below.

Lesser Horseshoe

- 7.27 In 2020, lesser horseshoe bats were recorded in very small numbers on two of the activity surveys and these were associated with the poor semi-improved and semi-improved grassland to the east and western boundaries, along linear features, forming c. 0.05% of total registrations, with the most registrations being recorded on Unit 5 in August, no clear commuting patterns were identified.
- 7.28 Overall, activity levels were not significant in Craig Y Perchych terms where this species is widespread and common, and the Site was considered of **County** importance for lesser horseshoe bats.

Greater Horseshoe

- 7.29 In 2020, greater horseshoes were recorded on in small numbers on three of the activity surveys and these were associated with the broadleaved woodland linear features in central mosaic of poor semi-improved grassland fields, forming c. 0.18% of total registrations, with the most registrations being recorded on Unit 2 in July, with a nightly peak of 6 registrations, no clear commuting patterns were identified.
- 7.30 Greater horseshoes are locally frequent in Craig Y Perchych, and the activity levels overall were not significant, so the Site was considered of **County** importance.

Bat Mitigation and Enhancements

- 7.31 The habitat on Site had a high degree of connectivity along woodland edge, hedgerows, tree lines and river corridors, and it is well connected with the wider landscape including high value neighbouring ancient woodland. Foraging opportunities also exist along the woodland edges and watercourses. The habitat on-Site is of high suitability for bats.
- 7.32 South Wales forms part of the core UK area for two of the UK's rarer bat species lesser and greater horseshoe bats, and suitable habitat for both species is present across the Site. Western Barbastelle are also likely to be present given the nearby ancient woodland resource.
- 7.33 Given the extent of the area, its geographical location and the high habitat quality, the Site is considered of **Regional** importance for bats.

Overall effect on Bats

- 7.34 The development proposals include the retention of the existing trees, habitats, and boundary features, as well as the general improvement of grassland condition and it is therefore considered that the proposed scheme will have an overall negligible effect on the bat assemblage at the Site.

Birds*Plateau*

- 7.35 The habitats on the plateau were associated more closely with heavily grazed moorland than lowland farmland, and this is reflected in the bird assemblage which included only the more typical common components. Ground nesting birds skylark (up to eight possible pairs in 2023) and meadow pipit (up to five possible pairs 2022) were consistently present each year in varying numbers, and tree pipit potentially bred in 2020. The scattered leggy gorse also provided opportunities for linnet and other species, and the presence of species such as wheatear (non-breeding) is also typical. This habitat type in bird terms is common Wales, and the plateau area is not large enough nor diverse enough to support a bird assemblage that could be regarded as important. This assemblage, and each species recorded, is of no more than **Local** value.
- 7.36 The proposals will result in the majority of the plateau being used for panels. All boundary features will be retained and buffered and bridleways/footpaths will be created along the boundaries and through the centre. Individual patches of leggy gorse scrub within the fields will be removed, but patches along the boundaries including a larger area to the north will be retained. The aim will be to reduce scrub to 4% for the benefit of the broader habitat long-term.

- 7.37 Some concern regarding breeding skylark and survey effort was raised in consultation with National Resources Wales in February 2023. Since then, further breeding bird surveys have been conducted to address effort and skylark numbers during 2023 were higher than the previous scoping surveys. Despite numbers being higher, they have been classified as 'possible' breeders since there was no evidence of successful breeding such as copulation, carrying food, actual nest sites observed nor juveniles. In addition, by late June, no skylarks were present on the plateau, which is unusual for successfully breeding skylark.
- 7.38 The grassland on the plateau is almost entirely short-grazed by the ponies and is unsuitable for skylark under the current management due to exposure and disturbance. Areas along the drystone walls and within areas nearer to the southern edge do provide more cover, and this habitat is ideal for meadow and tree pipit, but skylark are typically associated with open habitats and avoid edges. As the walls are low and vegetated in some areas, it is possible that if skylark were managing to successfully nest on site, it could be in these and perhaps similar more open edge patches, but the surveys recorded no conclusive evidence of this. Overall, despite the numbers recorded, based on the habitat and survey evidence, it is not predicted that the placing of panels in the fields will have a significant impact on skylark.
- 7.39 As the proposals retain the walls and edge habitat on site, including some scrub for nesting linnet, the predicted effect on the bird assemblage on the plateau during operation is negligible at the local level, based on the current management. As dunnoek and meadow pipit are likely to continue breeding, opportunities for cuckoo will also be maintained.
- 7.40 At decommission, with the proposed conservation grazing, habitat improvements and general increase in open suitable skylark habitat across the site, there is predicted to be a significant positive effect at the local level for skylark and the non-woodland bird assemblage.

Woodland

- 7.41 The woodland is of a habitat type capable of supporting a high value bird assemblage. Some of the species recorded are scarce and declining in Wales, including wood warbler, pied flycatcher, spotted flycatcher, and willow warbler. The woodland assemblage is considered of **county** importance; however, while it is a positive pied flycatcher, spotted flycatcher and wood warbler are at least present, their numbers were low. Pied flycatcher especially is capable of nesting in much higher densities within this habitat type and they respond well to nest boxes, redstart are also typical species that were not recorded. Overall, there will be no adverse effect on the woodland as a result of the solar farm itself. A woodland management plan is proposed including a box scheme to target the key Atlantic oak woodland species described below.

Mitigation and enhancements

- 7.42 The CEMP will include a nesting bird strategy to ensure no unlawful destruction of active nests to be removed during the bird breeding season (March to September inclusive) occurs during construction. This can be achieved by removing vegetation outside the nesting season, or if this is not possible, vegetation must be checked prior to removal by a suitably experienced ecologist. If active nests are found, vegetation should be left untouched and suitably buffered from works until all birds have fledged.
- 7.43 The 40-year management plan for enhancing Site habitats, includes those utilised by breeding birds. Grassland diversity and structure will be improved, benefiting ground nesting birds such as

skylark and all species that forage in grassland. Woodland enhancement through fencing to prevent overgrazing will improve woodland structure, creating new nesting opportunities and enhancing the foraging resource for woodland species. This overall increase in habitat will benefit the key Priority Species by at least providing an opportunity for them increase, and there will be an overall positive effect on the overall bird assemblage.

7.44 The following are recommended to be installed on trees and will be detailed in the detailed Ecological Management Plan:

- 20x Cedar Plus Open Front Flycatcher Boxes suitable for spotted flycatcher and common redstart.
- 20x 1B Schweigler Nest Boxes.

7.45 Overall, the effect of the proposals on the breeding bird assemblage is predicted to be positive, and the proposals are providing an opportunity to manage an area of Atlantic oak woodland designated a county wildlife site, which is currently in sub-optimal condition.

Hazel Dormouse

7.46 Whilst the presence of dormice on-Site is considered highly likely and the Site has county importance for the species, the scheme is not anticipated to impact on dormice either directly or indirectly. This is due to the retention of all trees, hedgerows, and areas of woodland within the Site throughout the scheme and the implementation of buffer zones and enhancement measures such as gapping up of existing hedgerows, in this way the habitat suitability and connectivity for dormice will be retained and enhanced. Overall, the effect of the proposals on the local dormouse population will be positive.

7.47 There is the potential for the set-up of 50x dormouse boxes on-Site for dormouse survey/monitoring, should the LPA or a licenced volunteer wish to do monthly dormouse monitoring.

Reptiles

7.48 Suitable habitat has been identified within the Site for the support of reptile species, specifically slow worm, common lizard, and grass snake records of the former species having been returned following consultation and common lizard having been recorded in the southeast area of the Site during surveys.

7.49 Given the limited impacts of the habitats affected by the proposed works to locate solar panels no further survey works are recommended. It is recommended that both the location of the new solar panels and the construction working areas are subjected to a “trim and push” exercise prior to construction, with these areas then maintained as short turf and unsuitable for use by common reptile species until commencement of construction operations. These areas can then be left to regrow post construction.

7.50 Should the design be altered so as to require the removal of any feature that could potentially provide refuge to common reptile species (hedgerow, scrub or associated banks) then affected areas should be assessed prior to removal by a suitably qualified ecologist and destructive search methods used as a precautionary measure as necessary. This can be secured through the CEMP

via an appropriately worded condition attached to planning consent. The following precautionary measures are recommended:

- Employment of passive displacement techniques that serve to encourage movement / restrict to more suitable habitats either those retained within overall development proposals or those within the local area; and
- Ground level clearance of any suitable habitat will be conducted April to October when the daytime temperature is above 10C and reptiles are active. Any semi-improved grassland/tall ruderal habitats to be removed over summer months will be walked prior to removal, and if vegetation is long it will be cut in two stages first to 100mm followed by a second walkover, and then reduced to ground level before commencing any earthworks.

Otter

- 7.51 No otter were recorded on the camera trap survey in August or September 2022 and no recorded were returned within 2km of the Site. It is unlikely that otter are present at this distance up the River Tawe tributary and there are no constraints to the footbridge proposals. It is recommended that the potential feature is monitored for 6 weeks prior to the proposed footbridge works, so that if otter were to occupy the feature in future, their presence would be recorded.

Other Mammals

American mink

- 7.52 One observation of mink was recorded on the camera trap survey in the River Tawe tributaries in 2022. American mink is an invasive species listed on Schedule 9 of the WCA. There is no statutory responsibility to control mink on private land. The record will be submitted to the local records centre to assist the national control of this species.

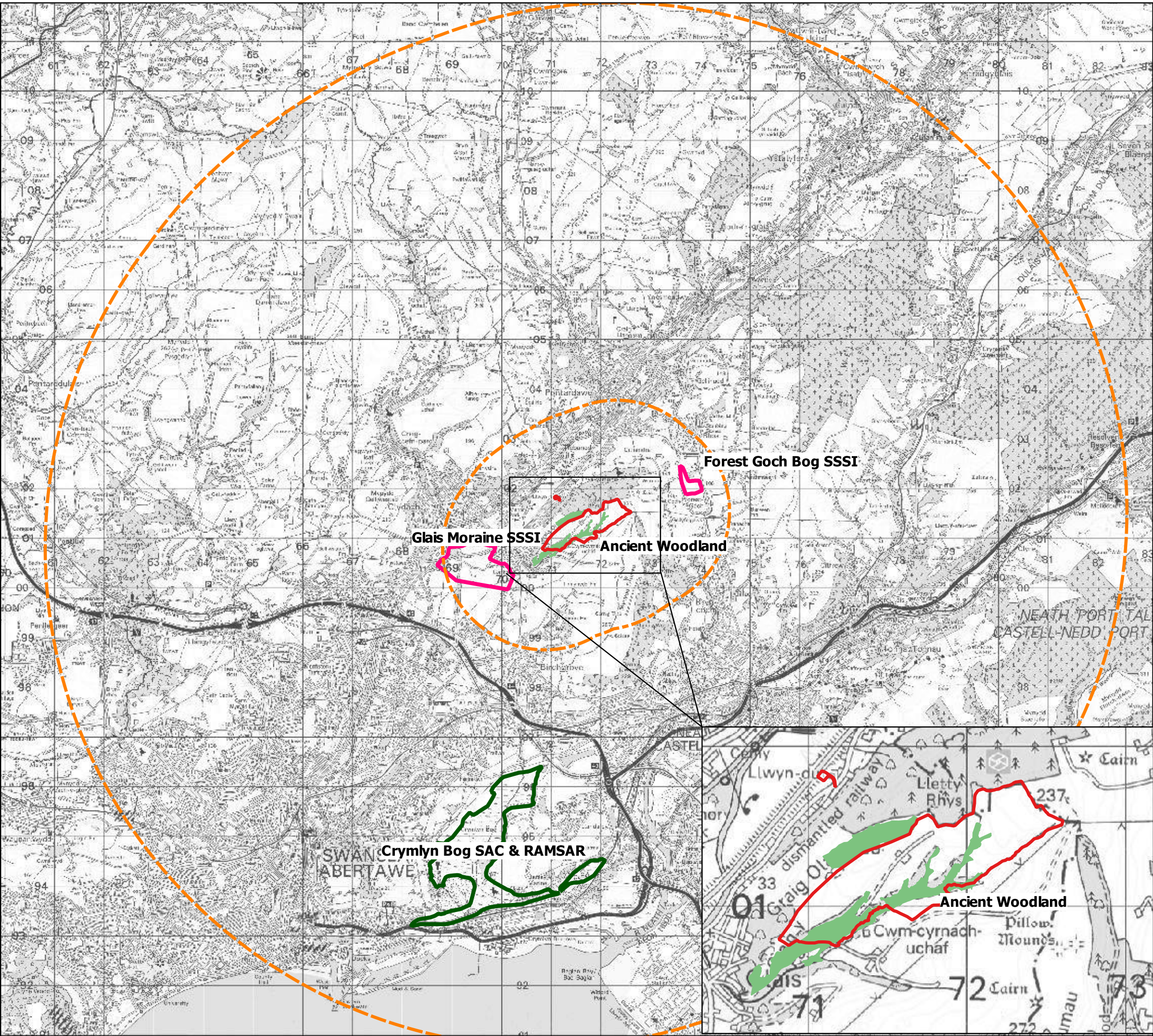
Polecat

- 7.53 Polecat are protected under Schedule 6 of the WCA and are listed in NERC section 41. They are likely to be present throughout the Site where good cover is present. There will be no impacts on polecat from the proposals and the proposed enhancements for the Site's habitats will likely improve the sites value to this species.

8.0 CONCLUSION

- 8.1 The survey work conducted in 2020 to 2023 provides a robust evidence base for assessing the impacts of the proposed development on the important features identified on the application Site. These were the unimproved grassland and fen, the bat assemblage and reptiles. The avoidance measures inbuilt into the design of the scheme and the mitigation proposed will ensure that there is a negligible effect on these important ecological features.
- 8.2 The enhancements proposed to ensure biodiversity benefits for both the important features identified, and scheme has the potential to lead to an overall minor and moderate beneficial effect on the biodiversity of the local area in the medium to long-term.

END OF REPORT

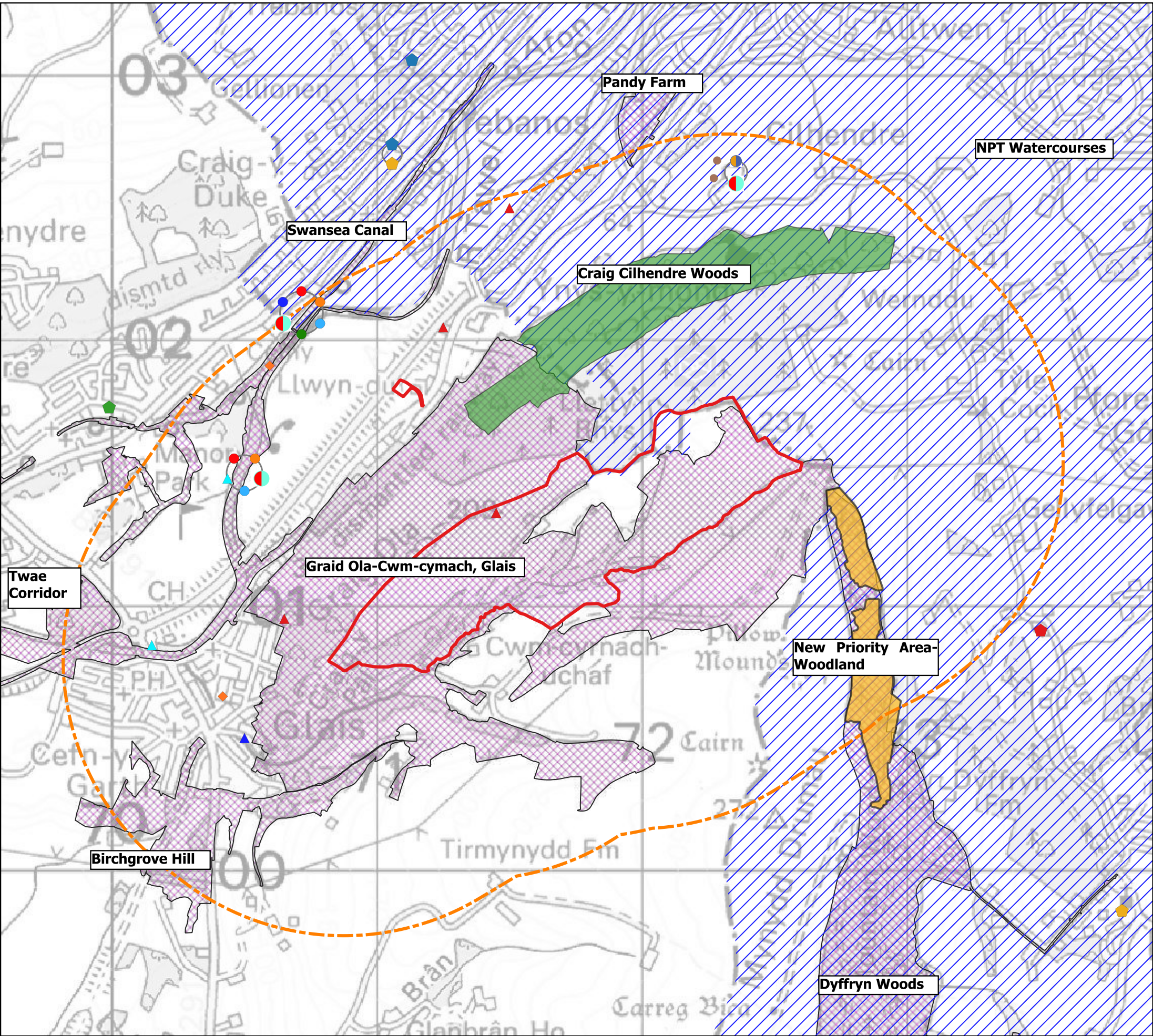


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Key

- Site Boundary
- 2km Buffer
- 10km Buffer
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC) and RAMSAR
- Ancient Woodland



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Key

- Site Boundary
- 1km Buffer
- Site of Importance for Nature Conservation (SINC)
- Natural Resources Wales Priority Area
- Wildlife Site / SINC
- Wildlife Trust Reserve
- Common Pipistrelle Roost
- Pipistrellus Bat Species Roost
- Soprano Pipistrelle Roost
- Unknown Bat Roost
- Myotis Bat Species Roost
- Common Pipistrelle
- Daubenton's Bat
- Goshawk
- Grass Snake
- Kingfisher
- Myotis Bat Species
- Natterer's Bat
- Noctule Bat
- Peregrine
- Pipistrellus Bat Species
- Red Kite
- Soprano Pipistrelle



client
The Sirius Group
project
Craig Y Perchych,
Swansea
drawing title
**PROTECTED SPECIES AND NON-STATUTORY
SITES PLAN**

scale
1:15,000
drawn
KO / DJC
issue date
14/12/2022

Figure 02

9567-E-02



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Key

Phase 1 Lines

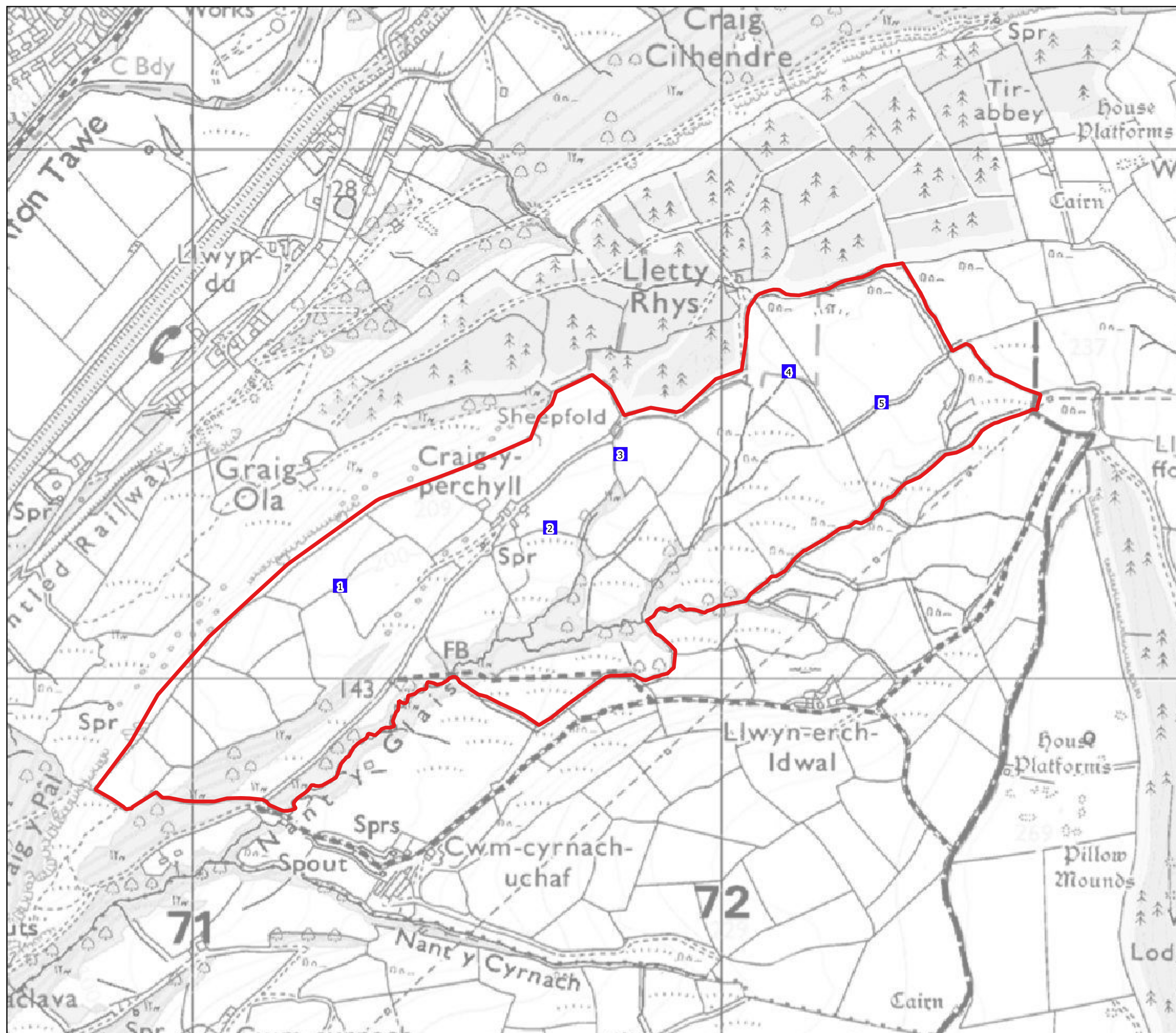
- Dry stone wall
- Earth bank
- - - Dry ditch
- Rivers

Phase 1 Points

- ⊙ Target note

Phase 1 Habitats

- SI Acid grassland - semi-improved
- Acid grassland - unimproved
- Bare ground
- Bracken - continuous
- Broadleaved woodland - semi-natural
- Built Environment: Buildings/hardstanding
- Dry dwarf shrub heath - acid
- | Improved grassland
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- SI Poor semi-improved grassland
- Scrub - dense/continuous
- Scrub - scattered

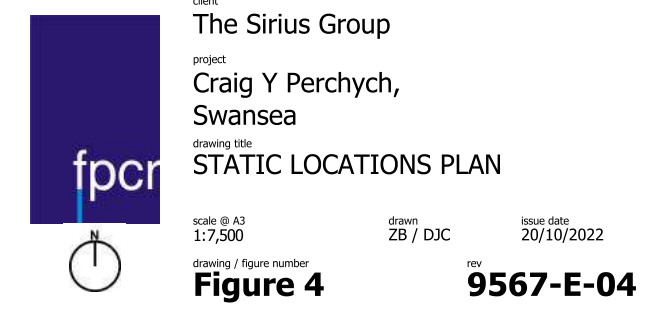


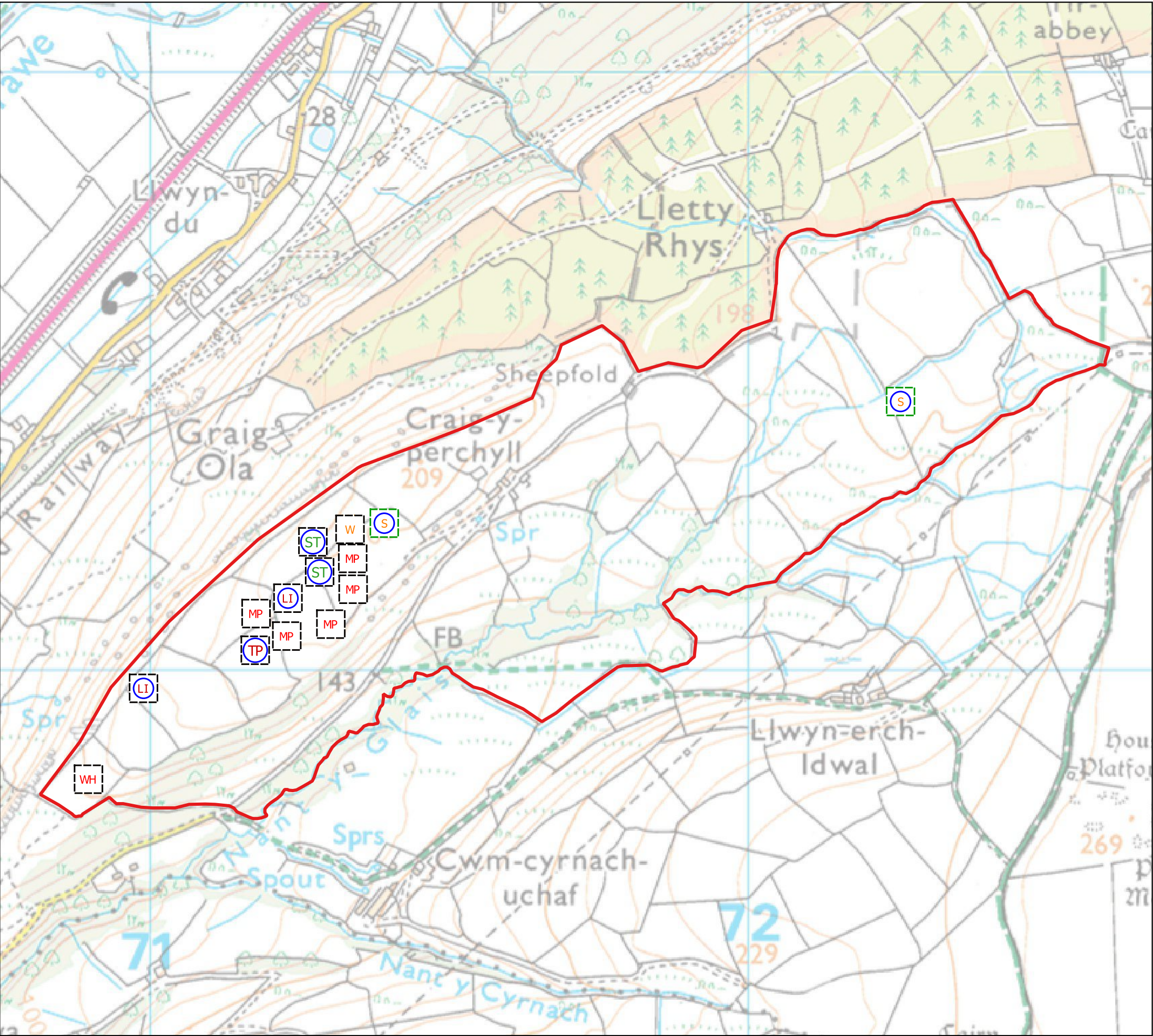
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Key

-  **Site Boundary**
-  **Static locations**





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Key

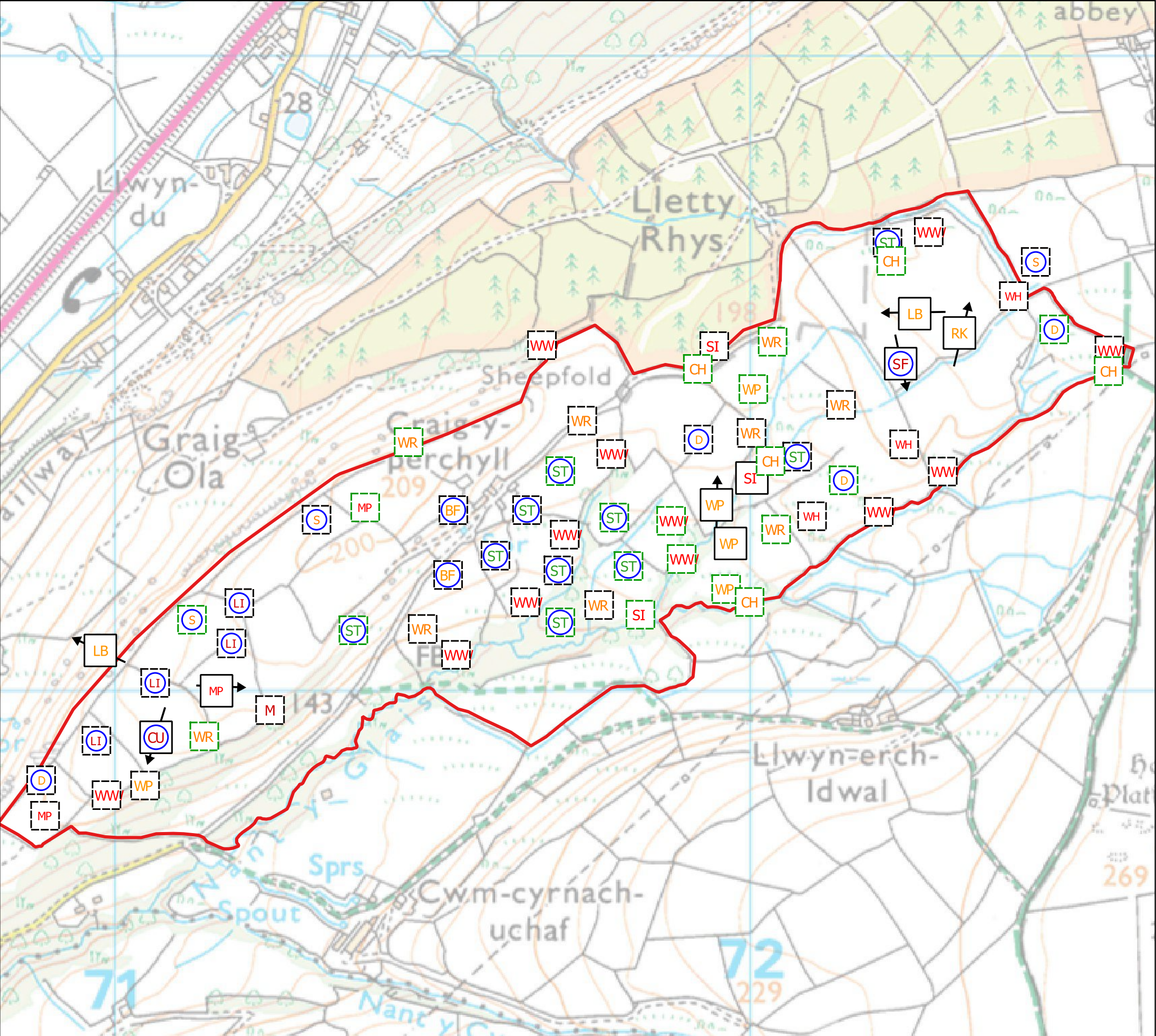
Breeding Status

- Probable Breeder
- Possible Breeder

- LI Linnet
- MP Meadow Pipit
- S Skylark
- ST Song Thrush
- TP Tree Pipit
- W Wheatear
- WH Whitethroat

Additional Protections

- NERC Species of Principal Importance
- Schedule 1 Species
- LBAP Species (underlined)



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Key

→ Fly over arrows

Breeding Status

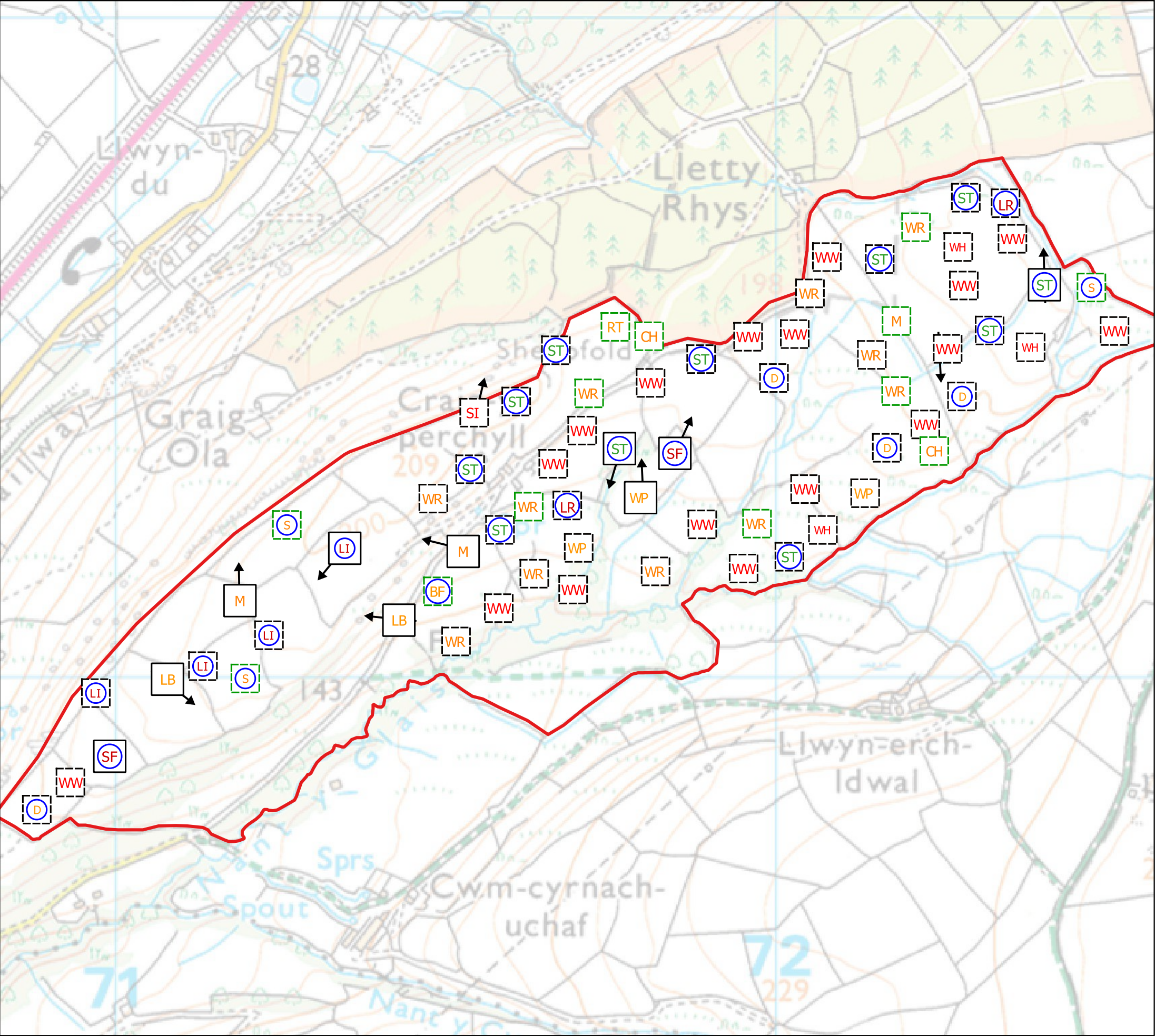
- Probable Breeder
- Possible Breeder
- Non-breeder

- Bullfinch
- Chaffinch
- Curlew
- Dunnock
- Lesser Black-backed Gull
- Linnet
- Meadow Pipit
- Mistle Thrush
- Redshank
- Skylark
- Song Thrush
- Spotted Flycatcher
- Swift
- Whitethroat
- Willow Warbler
- Woodpigeon
- Wren

Additional Protections

- NERC Species of Principal Importance
- Schedule 1 Species
- LBAP Species (underlined)





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Key

→ Fly over arrows

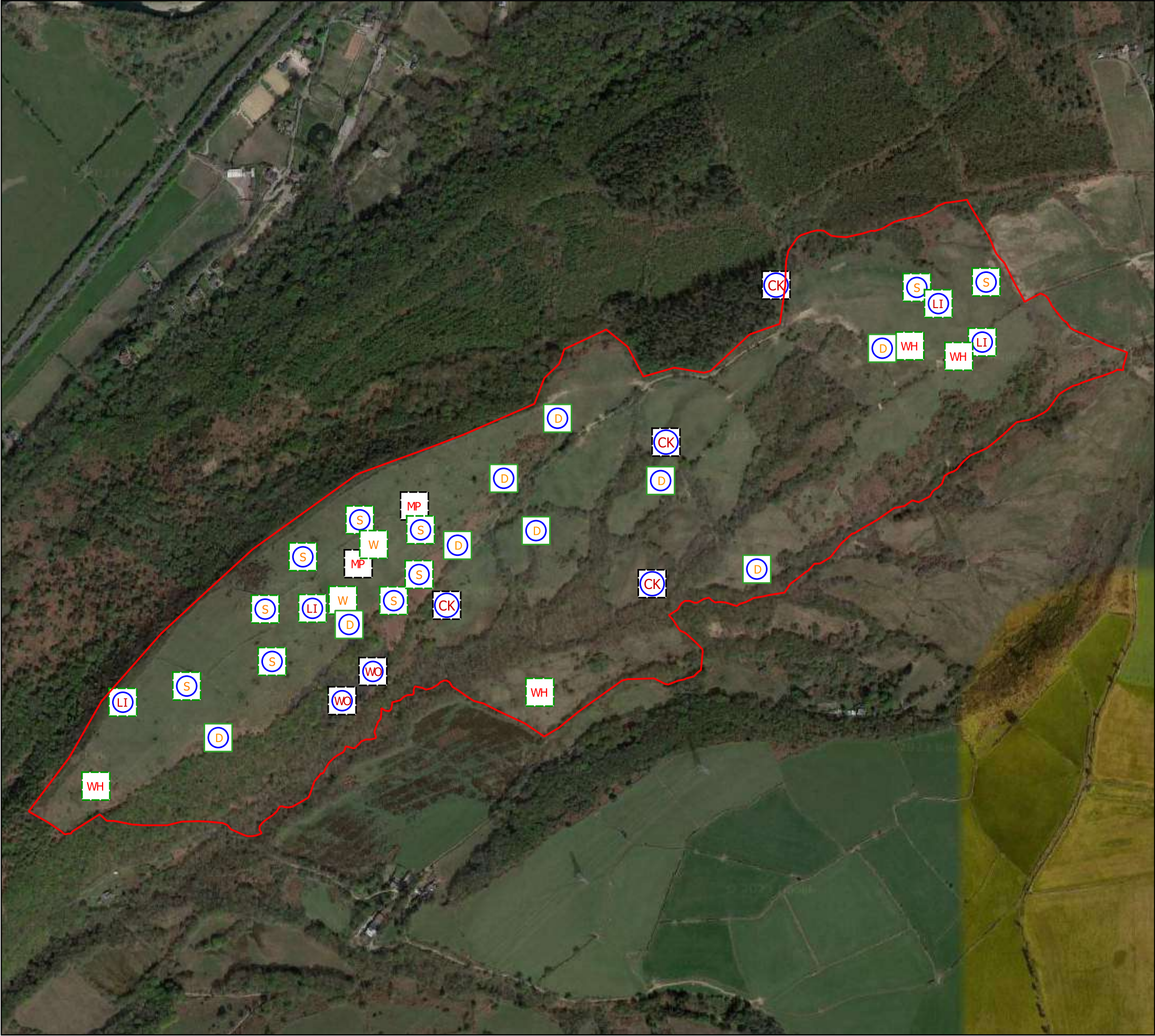
Breeding Status

- Probable Breeder
- Possible Breeder
- Non-breeder

- Bullfinch
- Chaffinch
- Dunnock
- Lesser Black-backed Gull
- Lesser Redpoll
- Linnet
- Mistle Thrush
- Redstart
- Skylark
- Song Thrush
- Spotted Flycatcher
- Swift
- Whitethroat
- Willow Warbler
- Woodpigeon
- Wren

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- NERC Species of Principal Importance
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Key

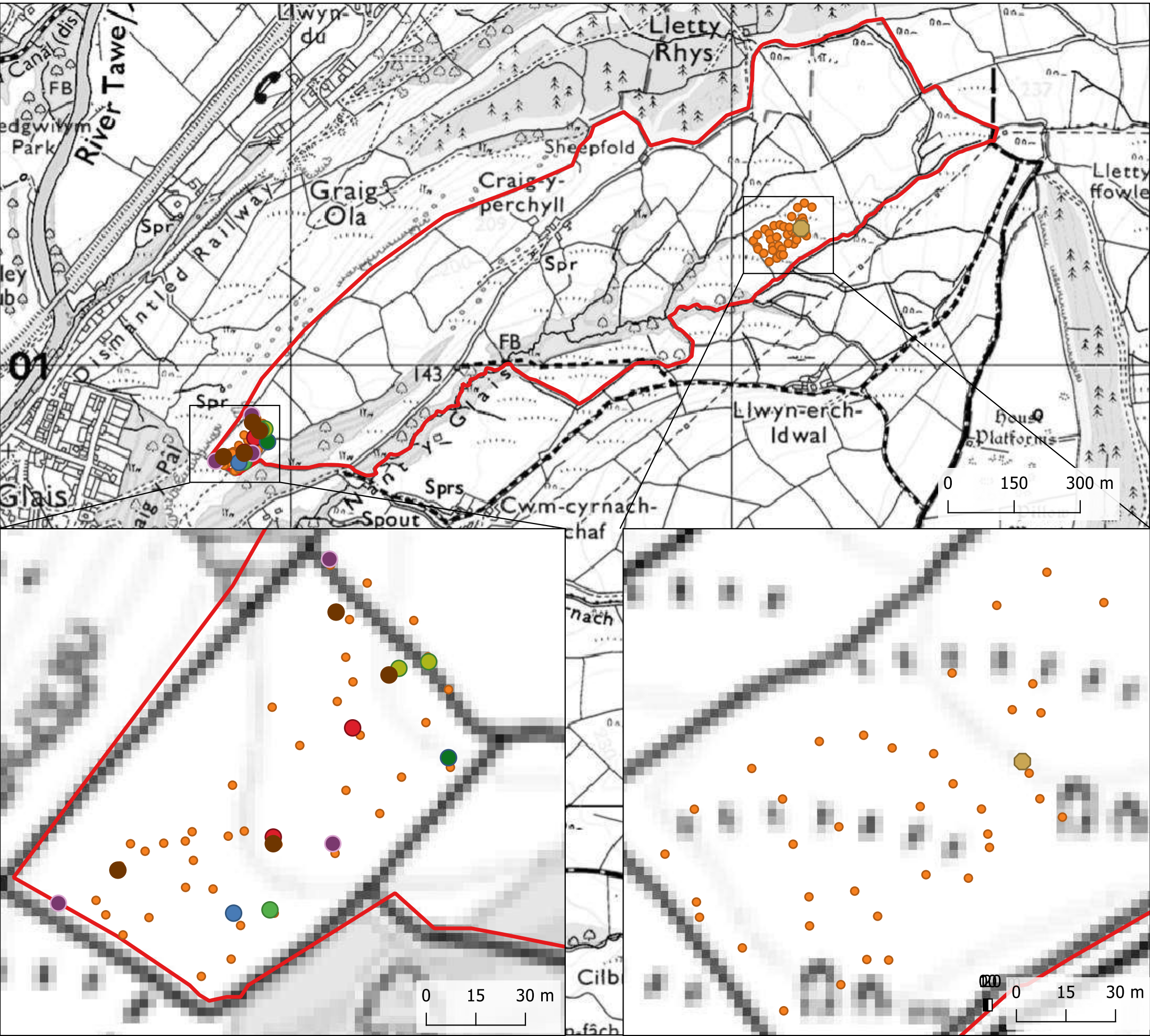
Site Boundary

BoCC Red List Species

- CK Cuckoo
- LI Linnet
- MP Meadow Pipit (singing males only)
- WO Wood Warbler
- WH Whitethroat

BoCC Amber List Species

- D Dunnock
- S Skylark (singing males only)
- W Wheatear



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Key

Site Boundary

● Reptile refugia

Common Lizard

● July - Female - Adult

● July - Female and Male- Adult

● July - Male - Adult

● July - Unknown - Adult

● July - Unknown - Juvenile

● October - Unknown - Adult

● September - Unknown - Adult

Grass Snake

● October - Unknown - Adult



client
The Sirius Group
project
Craig Y Perchych,
Glais, Swansea
drawing title
REPTILE SURVEY PLAN

scale @ A3
1:9,000

drawn
KO / MEL

issue date
3/10/2023

drawing / figure number
Figure 9

rev
9567-E-09

APPENDIX A – NATURE CONSERVATION LEGISLATION

The Conservation of Habitats and Species Regulations (“The Habitats Regulations”) (Amendment) 2012

European Protected Sites

The Habitats Regulations ratifies into UK law the “Habitats Directive” (92/43/EEC) and the “Birds Directive” (79/409/EEC). It places a duty on the Secretary of State to propose a list of sites which are important for species listed in Annex I and II of the Habitats Directive respectively to the European Commission. Once the Commission and EU Member States have agreed that the sites submitted are worthy of designation, they are identified as Sites of Community Importance (SCIs). The EU Member States must then designate these sites as Special Areas of Conservation (SACs) within six years.

The Regulations require the compilation and maintenance of a register of European sites to include SACs as well as Special Protection Areas (SPAs) designated for birds and sites designated as internationally important wetlands under the Ramsar Convention known as “Ramsar Sites”. These three designations form a collective Europe wide network of internationally protected sites known as Natura 2000. All European sites are also designated under UK law as Sites of Special Scientific Interest (SSSIs; please see below).

Habitats Regulation Assessment

There is a requirement under EU law that Member States’ take measures to reach and maintain European Protected Sites’ at Favourable Conservation Status (FCS). An Appropriate Assessment is required for plans or projects that may potentially damage a European Protected Site. This is based on an assessment against a given European Protected Site’s Conservation Objectives. The process is commonly known as a Habitats Regulations Assessment (HRA).

The HRA must be conducted by, or on behalf of, the Competent Authority. The HRA process assesses plans or projects alone or in combination. It involves a four stage approach as follows:

- Stage One: Screening - also known as the Test of Likely Significant Effect (TOLSE). If the Competent Authority cannot screen out a *likely significant effect*, an Appropriate Assessment is required.
- Stage Two: Appropriate Assessment - the Competent Authority will only agree to plans or projects that will not affect the *integrity* of a European site also known as the “Integrity Test”.
- Stage Three: Alternative Solutions - assesses any alternative solutions of a potentially damaging plan or project that failed the Integrity Test, and if it is determined there are no alternative solutions, the project cannot be agreed to and it will either need to be changed or refused.
- Stage Four: The final stage may allow a plan or project to proceed if after failing stage three if it is for Imperative Reasons of Overriding Public Interest, and only if suitable compensatory measures are secured.

Any plan or project that may have a potentially damaging effect on a transient species or the habitat on which it relies (for example bats or birds), that is both a Qualifying Features of a

European Protected Site and considered *functionally linked* with a European Protected Site, are required under law to be considered as part of any HRA process.

European Protected Species

The Habitats Regulations includes a list of animals and plant species taken from the Annex IV of the Habitats Directive that have a natural range which includes any area in Great Britain. These are collectively known as European Protected Species (EPS). The regulations make it an offence to deliberately capture, kill, disturb, take or destroy eggs of, or damage or destroy a breeding or resting place of animals listed in Schedule 2 of the Regulations, and to pick, collect, cut, uproot or destroy wild plants listed in Schedule 5 of the Regulations. All listed EPS are shown in Table 1 below. The Regulations also protect these species alive or dead and parts thereof from various forms of possession and trade.

Table 1: The Habitats Regulations Schedule 2 and Schedule 5 species

Schedule 2 – European Protected Species of Animals		Schedule 5 – European Protected Species of Plants	
Common name	Scientific name	Common name	Scientific name
Horseshoe bats – all species	<i>Rhinolophidae</i>	Shore dock	<i>Rumex rupestris</i>
Bats – all species	<i>Vespertilionidae</i>	Killarney fern	<i>Trichomanes speciosum</i>
Large blue butterfly	<i>Maculinea arion</i>	Early gentian	<i>Gentianella anglica</i>
Wild cat	<i>Felis silvestris</i>	Lady's-slipper	<i>Cypripedium calceolus</i>
Dolphins, porpoises and whales – all species	<i>Cetacea</i>	Creeping marshwort	<i>Apium repens</i>
Hazel dormouse	<i>Muscardinus avellanarius</i>	Slender naiad	<i>Najas flexilis</i>
Pool frog	<i>Rana lessonae</i>	Fen orchid	<i>Liparis loeselii</i>
Sand lizard	<i>Lacerta agilis</i>	Floating-leaved water plantain	<i>Luronium natans</i>
Fisher's estuarine moth	<i>Gortyna borellii lunata</i>	Yellow marsh saxifrage	<i>Saxifraga hirculus</i>
Great crested newt	<i>Triturus cristatus</i>		
Otter	<i>Lutra lutra</i>		
Lesser Whirlpool Ram's-horn snail	<i>Anisus vorticulus</i>		
Smooth snake	<i>Coronella austriaca</i>		
Sturgeon	<i>Acipenser sturio</i>		
Natterjack toad	<i>Bufo calamita</i>		

Schedule 2 – European Protected Species of Animals		Schedule 5 – European Protected Species of Plants	
Marine turtles	<i>Caretta caretta</i> <i>Chelonia mydas</i> <i>Lepidochelys kempii</i> <i>Eretmochelys imbricata</i> <i>Dermochelys coriacea</i>		

These actions may be made lawful in certain circumstances through the granting of licences by the appropriate authority (Natural Resources Wales). Licences must only be granted after the appropriate authority is satisfied that no satisfactory alternatives are available. In most circumstances, licences are only applied for and granted following full planning permission.

In determining whether or not to grant a licence Natural Resources Wales must apply the requirements of The Conservation of Habitats and Species Regulations 2012 (amendment) and, in particular, the three derogation tests:

- Test 1: A licence can be granted for the purposes of “preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment”.
- Test 2: The appropriate authority shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”.
- Test 3: The appropriate authority shall not grant a licence unless they are satisfied “that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (WCA) (as amended) is the principal legislation providing protection for wildlife in the UK. It prescribes legislation for wild birds, other animals, wild plants and non-native species. In addition, it provides for the designation of Sites of Special Scientific Interest (SSSI) in Wales.

Wild birds

The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

For birds listed on Schedule 1 of the Act, protection extends to offences relating to disturbance of these birds while at their nests or their dependent young.

Other animals

The WCA (as amended) makes it an offence to (subject to exceptions) intentionally or recklessly kill, injure or take wild animals listed on Schedule 5 of the Act. For some species, the protection extends to interference with places used for shelter or protection, or intentionally disturbing

animals occupying such places. These species are regarded as “fully protected” and as well as the EPS species listed above include the mammal species water vole *Arvicola terrestris*, pine marten *Martes martes* and red squirrel *Sciurus vulgaris* as well as selected others from a range of species groups including, fish, butterflies, hemipteran bugs, beetles, crickets, dragonflies, moths, spiders, crustaceans, sea-mats, molluscs, Annelid worms and sea anemones (and allies).

There are seven species on Schedule 5 of the Act that not fully protected but are still protected against killing and injuring these include the common reptile species slow worm *Anguis fragilis*, viviparous lizard *Lacerta vivipara*, grass snake *Natrix natrix* and adder *Vipera berus*.

The Act prohibits certain methods of killing, injuring, or taking wild animals, and numerous species are protected against sale only as well as other variations for example Atlantic stream (white-clawed) crayfish *Austropotamobius pallipes* are protected against taking and sale.

Vascular plants, bryophytes, lichens and fungi

With regards to native flora the Act makes it an offence to (subject to exceptions) intentionally pick, uproot or destroy any wild plant listed in Schedule 8. Similarly, the Act prevents the sale, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Non-native species

The Act contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales.

Sites of Special Scientific Interest

The Act provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs). These sites can be identified for their flora, fauna, geological or physiological interest. In Wales, the power to confirm an SSSI lies with Natural Resources Wales.

Laws protecting areas designated as SSSIs are described in Sections 28 to 33 of Part 2 of the Wildlife and Countryside Act 1981 (as amended). SSSIs are the principle statutory designation of sites in the UK and offences are enforced through Natural Resources Wales. Offences include the following:

SSSI owners and occupiers

- carrying out, causing or allowing operations likely to damage an SSSI without Natural Resources Wales consent.
- failing to keep to a management notice.
- failing to let us know about a change in ownership or occupation of land in an SSSI.

Public bodies

- carrying out or authorising operations likely to damage an SSSI without meeting the requirements to notify Natural Resource Wales.
- failing to minimise any damage to an SSSI and if there is any damage, failing to restore it to its former state so far as is reasonably practical and possible.

Any person

- intentionally or recklessly damaging, destroying or disturbing any of the habitats or features of an SSSI.
- intentionally or recklessly damaging, destroying, obscuring or taking down a site notice put up on land within an SSSI.
- preventing a Natural Resources Wales officer lawfully accessing an SSSI.

Protection of Badgers Act 1992

Badgers and their setts are protected under the Protection of Badgers Act 1992. This act is based on the need to protect badgers from persecution by baiting and deliberate harm or injury.

The act makes it an offence to:

- intentionally capture, kill or injure a badger;
- damage, destroy or block access to their setts;
- disturb badgers in setts;
- treat a badger cruelly;
- deliberately send or intentionally allow a dog into a sett; and
- bait or dig for badgers.

A sett is defined as:

“Any structure or place that displays signs indicating current use by a badger”.

Environment (Wales) Act 2016

Section 6 of the Environment (Wales) Act 2016 imposes a duty on every public authority to maintain and enhance biodiversity in exercising its functions, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions (S6 duty). Resilience of ecosystems is accounted by the following aspects; diversity between and within ecosystems; the connections between and within ecosystems; the scale of ecosystems; the condition of ecosystems (including their structure and functioning); and the adaptability of ecosystems.

Section 7 of the Environment (Wales) Act 2016 requires the Welsh Ministers to publish a list of habitats and species that are of principal importance for the conservation and enhancement of biodiversity in Wales. The list (including 55 habitats and 560 species) has been drawn up in consultation with Natural Resource Wales and draws upon the UK BAP List of Priority Species and Habitats. The section 7 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 6 of the Environment (Wales) Act 2016.

Planning Policy Wales (2018) (PPW)

The Planning Policy Wales (2018) sets out the Welsh Government's planning policy for Wales. As such, the PPW must be a material consideration for local authorities when considering planning decisions. The following points highlight those policies/statements which particularly relate to ecology/biodiversity and the planning system:

Policy 5 – Distinctive and Natural Places

Biodiversity and Ecological Networks

5.42 The planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement. Development plan strategies, policies and individual development proposals must take into account the need to:

- promote the conservation of biodiversity, in particular the conservation of wildlife and habitats;
- ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;
- ensure statutorily designated sites are properly protected and managed;
- safeguard protected species; and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil; and
- seek enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks.

Maintaining and Enhancing Biodiversity

5.58 Planning authorities should protect and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are minimised and mitigated, by:

- ensuring that features and elements of biodiversity or green infrastructure value are retained on site wherever possible, and enhanced or created where appropriate, by adopting best practice site design and green infrastructure principles; and
- when all other options have been exhausted, and where modifications, alternative sites, conditions or obligations are not sufficient to secure beneficial environmental outcomes, offsite compensation for unavoidable damage should be sought.

Local Nature Reserves

Local Nature Reserve (LNR) is a statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949.

Local authorities have the powers to acquire, declare and manage LNRs. Parish and town councils can declare LNRs providing power is given by the district or county council. LNRs may or may not have other statutory designations such as SSSI status. LNRs must be controlled by the local authority through ownership, lease or agreement with the owner. The main aim must be

to care for the natural features which make the site special. LNRs are of local, but not necessarily national, importance.

LNRs are usually owned by local authorities, with management often passed onto other organisations such as County Wildlife Trusts etc. They often have good public access and facilities. There is no legal necessity to manage an LNR to any set standard but management agreements and plans often exist. Protection of LNRs is usually provided through local planning policy and through local bylaws.

Non-Statutory Protected Local Sites

Non-statutory Designated Sites are sites designated by local authorities which fall outside the statutory criteria for designation. They are policy protected and included in the Planning Policy Wales (PPW). Local Planning Authorities should set criteria based policies against which proposals for developments on or affecting protected wildlife sites should be judged. Non-statutory sites are given various names including County Wildlife Sites (CWS), Sites of Importance for Nature Conservation (SINC) and Local Wildlife Sites (LWS). A search of the Ancient Woodland Inventory is also included here.

Hedgerows

Hedgerows are designated as Habitats of Principal Importance under the Environment (Wales) Act 2016. The Planning Policy Wales (PPW) emphasises the preservation, restoration and re-creation of priority habitats and ecological networks. Hedgerows are important components of ecological networks linking other important habitats and designated sites.

Hedgerows also receive statutory protection under the Hedgerow Regulations 1997 made under Section 97 of the Environment Act 1995, which came into force in 1997. The regulations introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

Local Biodiversity Action Plan (LBAP)

Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

Birds of Conservation Concern (BoCC)

The Birds of Conservation Concern (BoCC) is jointly prepared by the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

The report classifies birds according to the extent that they are known to be declining. The classifications are split into groups, Red, Amber and Green, with species classified as Red being those with the greatest declines. The criteria for classifications are presented in *Table 2*.

Table 2: BoCC species classification criteria

Red List Criteria	Amber List Criteria	Green List Criteria
Global Conservation Status - Species listed by BirdLife International as being Globally Threatened using IUCN criteria.	European Conservation status - Categorised as a Species of European Conservation Concern.	All regularly occurring species that do not qualify under any of the red or amber criteria are green listed.
Historical Decline - A severe decline in the UK between 1800 and 1995, without substantial recent recovery.	Historical Decline – Recovery - Red listed for Historical Decline in a previous review but with substantial recent recovery (more than doubled in the last 25 years).	Includes those species listed as recovering from Historical Decline in the last review that have continued to recover and do not qualify under any of the other criteria.
Breeding Population Decline - Severe decline in the UK breeding population size, of more than 50%, over 25 years or the entire period used for assessments since the first BoCC review, starting in 1969 ("longer-term").	Breeding Population Decline - As for red list criteria and, but with moderate decline (by more than 25% but less than 50%).	
Non-breeding Population Decline - Severe decline in the UK non-breeding population size, of more than 50%, over 25 years or the longer-term.	Non-breeding Population Decline - As for red list criteria and, but with moderate decline (by more than 25% but less than 50%).	
Breeding Range Decline - Severe decline in the UK range, of more than 50%, as measured by number of 10 km squares occupied by breeding birds, over 25 years or the longer-term.	Breeding Range Decline - As for red list criteria and, but with moderate decline (by more than 25% but less than 50%).	
	Rarity - UK breeding population of less than 300 pairs, or non-breeding population of less than 900 individuals.	
	Localisation - At least 50% of the UK breeding or non-breeding population found in 10 or fewer sites.	
	International Importance - At least 20% of the European breeding or non-breeding population found in the UK.	

APPENDIX B- PHASE 1 DESCRIPTIONS AND BOTANICAL SPECIES LIST

Description	Photograph
B1.1: Unimproved Dry Acid Grassland (with ant hills) Unimproved dry-acid grassland with ant hills was present on the plateau predominantly to the west and along the fringes of the field compartments. This community sat between the semi-improved neutral grassland and dry a heath community present on drystone walls/banks and had characteristics of both. The main species in the community were common bent <i>Agrostis capillaris</i>, billberry <i>Vaccinium myrtillus</i>, ling <i>Calluna vulgaris</i>, bell heather <i>Erica cinerea</i>, cat's ear <i>Hypochaeris radicata</i>, birdsfoot trefoil <i>Lotus corniculatus</i>, red fescue <i>Festuca rubra</i> agg., sheep sorrel <i>Rumex acetosella</i>, sheep fescue <i>Festuca ovina</i> agg., heath bedstraw <i>Galium saxatile</i>, red fescue <i>Festuca rubra</i> agg., sheep sorrel <i>Rumex acetosella</i>, sheep fescue <i>Festuca ovina</i> agg., heath bedstraw <i>Galium saxatile</i>, heath woodrush <i>Luzula multiflora</i>, eyebright <i>Euphrasia officinalis</i> agg., tormentil <i>Potentilla erecta</i>, selfheal <i>Prunella vulgaris</i> and Yorkshire fog <i>Holcus lanatus</i>. The undesirable species white clover <i>Trifolium repens</i> and ragwort <i>Senecio jacobaea</i> were present throughout. Mouse ear hawkweed <i>Hieracium pilosella</i>, yellow rattle <i>Rhinanthus minor</i>, common century <i>Centaureum erythraea</i>, heath speedwell <i>Veronica officinalis</i>, common mouse ear <i>Cerastium fontanum</i>, knotted pearlwort <i>Sagina nodosa</i>, red clover <i>Trifolium pratense</i> and field woodrush <i>Luzula campestris</i>.	
F1 – Dry acid grassland on plateau. 	F6 – Dry acid grassland on plateau. 
B1.2 Semi-improved Acid Grassland This habitat is a graduation formed down the slopes of F11, F13, F14, F15 and F16 where it transitions from neutral grassland to semi-improved acid grassland and a habitat with some characteristics of acid fen meadow, although purple moor grass <i>Molinia caerulea</i> was scarce. The least diverse form of this habitat was present within F24 and F25, and parts of the poor semi-improved grassland. Few areas were boggy, except for some heavily poached areas, and the separately described fen habitat within F11. All fields were heavily grazed and short at the time of survey. The main acid indicator species were tormentil, heath bedstraw, sheep's fescue, mat-grass <i>Nardus stricta</i>, heath spotted orchid <i>Dactylorhiza maculata</i> (500+ spikes F13 - F16), lousewort <i>Pedicularis sylvatica</i>, common milkwort <i>Polygala serpyllifolia</i> and field woodrush <i>Luzula campestre</i>. Sedges were also abundant in many areas especially within the lower fields, particularly glaucous sedge <i>Carex flacca</i>. There were also small patches of low growing heather leading to low and mature gorse in F16. Devil's bit scabious present throughout and was abundant in some fields particularly F14, F15 and F16. Common bent, red fescue, sweet vernal grass <i>Anthoxanthum odoratum</i> and Yorkshire fog comprised the main grass species, and species such as cat's ear, ribwort plantain <i>Plantago lanceolata</i>, red clover <i>Trifolium pratense</i>, white clover and meadow buttercup <i>Ranunculus repens</i> were also present throughout most fields. Great burnet <i>Sanguisorba officinalis</i> was noted in F16. In some, localised areas and particularly within F15, the community was indicative of moist conditions, with creeping willow <i>Salix repens</i>, bell heather <i>Erica tetralix</i>, sharp-flowered rush <i>Juncus acutiflorus</i>, soft rush <i>Juncus effusus</i>, glaucous sedge and star sedge <i>Carex echinate</i>. Quacking grass <i>Briza media</i> was noted only within F11; it's presence along with creeping willow, indicate some areas are flushed by mineral-enriched groundwater resulting in areas with a slightly raised soil pH.	

F14 – Semi improved acid grassland



F15 – Semi improved acid grassland



F15 - Example of creeping willow habitat



F16 – Semi-improved acid grassland with scrub



F17 - Semi-improved acid grassland with scrub



F25 Semi-improved acid grassland with scrub



B2: Semi-Improved Neutral Grassland

Three areas of semi-improved neutral grassland were present onsite, each characterised by its varying diversity and structure. These fields all had patches with an acid influence, mainly on the ant hills and along some field margins.

On the plateau, the semi-improved neutral grassland was located centrally within fields F2 to F9 (and F10), becoming more acid along the boundaries. Nutrient enrichment from ponies having preferred areas to frequent had a noticeable effect eastward, with species richness dropping by field F10.

The primary grass species were red fescue *Festuca rubra* agg., Yorkshire fog *Holcus lanatus* common bent *Agrostis capillaris*, crested dogs-tail *Cynosurus cristatus* and sweet vernal grass *Anthoxanthum odoratum*. The most abundant forbes were white clover *Trifolium repens*, ribwort plantain *Plantago lanceolata*, cat's ear *Hypochaeris radicata*, yellow rattle *Rhinanthus minor*, ragwort *Senecio jacobaea*, red clover, autumn hawkbit *Leontodon autumnalis*. Common mouse ear *Cerastium fontanum*, birdsfoot trefoil, eye bright and selfheal also occurred frequently throughout the sward in slightly lower abundance. Other species present as a lesser component were Yarrow *Achillea millefolium*, sheep sorrel, black knapweed *Centaurea nigra*, Perennial Ryegrass *Lolium perenne* and field woodrush, Daisy *Bellis perennis*, *Taraxacum* agg, rough hawkbit *Leontodon hispidus*, Common century, meadow buttercup, and mouse ear hawkweed.

Field's F11, F12 and F13 had a semi-improved neutral grassland component, that transitioned into acid grassland down slope. All three had some ant hills. The habitat was very similar in species composition to that on the plateau with the addition of locally abundant glaucous sedge, locally abundant devil's bit scabius, pignut *Conopodium majus* and occasional cock's foot *Dactylis glomerata*. Both black knapweed and meadow buttercup were also more abundant, and eyebright was mostly absent.

The grassland in field's F26 and F27 was structurally different. It was forb rich and short grazed by rabbits as well as the ponies. Crested dogs-tail, *Agrostis* spp., red fescue/*festuca* spp. and more occasionally annual meadow grass *Poa annua*, were consistent within the sward, with more nutrient rich patches containing Yorkshire fog and perennial ryegrass present. *Carex* sp., birdsfoot trefoil, autumn hawkbit, white clover, common daisy *Bellis perennis*, selfheal, and ribwort plantain were frequent to abundant. Other regularly occurring species included yarrow, red clover, field woodrush, creeping buttercup *Ranunculus repens*, eyebright and common cat's ear. slender trefoil *Trifolium micranthum*, common century, curled dock *Rumex crispus* and meadow buttercup were also present.

F8 - Semi-improved neutral grassland on plateau



F6 - Semi-improved neutral grassland on plateau



F11 - Semi-improved neutral grassland



F12 - Semi-improved neutral grassland



B6: Poor Semi-Improved Grassland

The poor semi-improved grassland within F19, F21, F22 was a lower in species-richness version of the neutral semi-improved grassland. They were also noticeably more poached and meadow buttercup more abundant. Crested dog's tail, common bent and red fescue were all abundant. Birds-foot trefoil, red-clover, common cat's ear, white clover, and yarrow remained frequent components, along with pignut. Along the fringes in longer areas were patches with oxeye daisy *Leucanthemum vulgare*, black knapweed and silverweed *Potentilla anserina* amongst buttercups, and there was also occasional southern marsh orchid a *Dactylorhiza praetermissa*.

The poor semi-improved grassland within F22 was longer and more grass dominant with Yorkshire fog, common bent, perennial ryegrass, crested dog's tail, sweet vernal grass, and red fescue most abundant. Ribwort plantain, cat's ear, red clover, birdsfoot trefoil, black knapweed, selfheal, oxeye daisy, taraxacum agg., meadow buttercup, white clover and pignut were present but patchier in distribution. As were some more acid influence indicators in the east and north of the field, including tormentil, matt grass, sheep's fescue, and heath wood rush. There were also occasional stands of creeping thistle *Cirsium arvense*, ragwort and broad-leaved dock *Rumex obtusifolius*, and creeping buttercup was abundant in much of the field.

F22 – Poor semi-improved grassland



F24 – Poor semi-improved grassland



B4: Improved Grassland

All or part of F18, F19, F20, F22, F22 and F23 was heavily influenced by the current management regime. It was of low species richness, heavily poached and there was an abundance of undesirable species present. The most abundant grass species were perennial ryegrass, Yorkshire fog, crested dogs-tail and *Agrostis* sp., creeping buttercup, white clover, and ragwort were all abundant, and broad-leaved dock locally abundant. Selfheal, daisy, annual meadow-grass, taraxacum agg., ribwort plantain were the most frequent forbs encountered. Silverweed, red clover, common cat's ear, greater plantain *Plantago major*, meadow buttercup, black knapweed, oxeye daisy, and yarrow were all recorded in localised areas, and birdsfoot trefoil was rare to occasional.

F18 – Improved grassland



F19 - Improved grassland



F20 - Improved grassland



F23 - Improved grassland



B5: Marsh/marshy grassland

F11 includes an area of species-rich acid marshy grassland with signs of a higher pH from, with purple moor grass *Molinia caerulea*, Yorkshire fog, sweet vernal grass, cotton grass *Eriophorum angustifolium*, lesser spearwort *Ranunculus flammula*, marsh thistle, heath spotted orchid, southern marsh orchid, ragged robin *Silene flos-cuculi*, soft rush *Juncus effusus*, square stalked St John's wort, *Hypericum tetrapterum*, jointed rush *Juncus articulatus*, creeping willow, devil's bit scabius, quacking and meadow thistle *Cirsium dissectum*. Grey willow *Salix cinerea* and alder *Alnus glutinosa* saplings and scrub were present throughout and encroaching from the woodland edge.

F28 lies outside the deployment zone and will form part of the management zone. The field is dominated by purple moor grass *Molinia caerulea*. Encroachment from willow and bramble *Rubus fruticosus* scrub is evident. Forb diversity is higher in areas accessed more frequently by the ponies.

Other small patches of marshy grassland were present on site within lower field compartments (TN1, TN2, TN5 and TN4). These all contained bare ground due to heavy poaching. These were mostly dominated by lesser spearwort and *juncus spp.*, and were generally species poor. The more diverse of them (TN3) had a similar species composition to the marshy grassland in F11.

F11 - Marshy grassland



TN1 – Marshy grassland



F28 – Marshy grassland



A1: Woodland

Woodland featured outside of the employment zone, with a large block of humid ancient sessile oak *Quercus petraea* woodland (Atlantic oak woodland) along the length of the southern and eastern boundary and fingering up along ditches and streams dividing the southern fields. The ponies had access to the woodland, and grazing pressure varied.

The woodland on the southern face of the plateau was had a well-formed understory with Aspen *Populus tremuloides*, rowen *Sorbus aucuparia*, holly *Ilex aquifolium* and hazel *Corylus avellana*, willow *Salix Spp.*, and alder nearer the watercourse south of the track. Both bramble and holly were abundant suggesting recovery from previous heavier grazing and the area would benefit from management. A large proportion of the woodland was heavily overgrazed with a sparse understory and ground flora. This area stretched from the block south of F11 to F16 and the corresponding fingers of woodland between fields. The eastern boundary woodland was more difficult to access due to dense scrub along the boundary, and as a result was less grazed and more undisturbed; this area was not surveyed extensively. The woodland ground flora was not extensively surveyed but included bluebell *Hyacinthoides non-scripta*, hard fern *Blechnum spicant*, lady fern *Athyrium filix-femina*, remote sedge *Carex remota*, foxglove *Digitalis purpurea*, creeping soft grass *Holcus mollis*, yellow archangel *Lamium galeobdolon*, wood avens *Geum urbanum*, common male fern *Dryopteris filix-mas* and honeysuckle *Lonicera periclymenum*. The woodland streams mostly supported the woodland ground flora on the banks, as well as mosses and liverworts.

To the east of the plateau was a line of early successional silver birch *Betula pendula* woodland and bracken. The woodland and scrub block between F22, F23 and F25 was dense and more recent, with old oaks along probable old field boundaries.

Woodland on Plateau slope



Birch and bracken woodland



Southern woodland



Southern woodland



Shows contrast of grazed and fenced ungrazed woodland.

A2: Scrub

Patches of scrub scattered and continuous scrub were in field parcels F1, F2, F3 F4, F6, F8, F9, F11, F13 and F17. These scrub patches are dominated by bracken *Pteridium aquilinum*, gorse *Ulex europaeus*, and bramble *Rubus fruticosus* agg. TN3 was an area of willow *Salix* spp, downy birch *Betula pubescens*, and bramble scrub within F28 that had encroached on and around a flush.

TN3 – Willow scrub



F17 – Boundary bracken/bramble scrub



C1: Bracken

Continuous bracken *Pteridium aquilinum* was the dominant species in F1 and along the southern edge of F2, F3 and F5. It was also dominant along the southern slope of the plateau to the east.

F1 – Continuous bracken



D5: Dry heath/acid grassland mosaic

Along the drystone walls dividing the plateau field compartments and on the eastern side of the Plateau slope, the habitat is a mosaic of dry heath and acid grassland. The main species were common bent, sheep's fescue, red fescue, bilberry, ling, bell heather, mat-grass, heath woodrush, heath bedstraw, tormentil, sheep sorrel, mouse ear hawkweed, hard fern and common polypody *Polypodium vulgare* and bracken/bramble/gorse scrub.

Southern slope Plateau



Dry stone wall/bank Plateau



G2: Running water

There is a tributary of the River Tawe that runs through the southern woodland along the southern boundary. This is a rocky stream typical of the humid ancient sessile oak woodland in South Wales. A network of three watercourses joins the tributary through the site running within the three central woodland fingers. The largest was the eastern watercourse which enters the site between F26 and F24. This stream starts open with scattered hawthorn *Crataegus monogyna*, gorse, and *Salix spp.* scrub before entering the woodland, where it widened to form a rocky stream. The central valley was similarly wide, open and rocky and was frequently dry. The eastern watercourse was narrower and had formed boggy areas. The flora was mostly woodland species, though in more open areas there was species such as marsh thistle, water figwort *Scrophularia umbrosa*, hemlock water dropwort *Oenanthe crocata*, creeping buttercup, bog speedwell *Veronica beccabunga*, marsh ragwort *Jacobaea aquatica* and water forget-me-not *Myosotis scorpioides*.

River Tawe tributary



Central woodland watercourse



Unimproved acid grassland and dry acid heath mosaic

Bracken	<i>Pteridium aquilinum</i>
Billberry	<i>Vaccinium myrtillus</i>
Birdsfoot trefoil	<i>Lotus corniculatus</i>
Cat's ear	<i>Hypochaeris radicata</i>
Common bent	<i>Agrostis capillaris</i>
Common centaury	<i>Centaurium erythraea</i>
Common mouse ear	<i>Cerastium fontanum</i>
Common polypody	<i>Polypodium vulgare</i>
European gorse	<i>Ulex europaeus</i>
Eyebright	<i>Euphrasia officinalis</i> agg.
Field woodrush	<i>Luzula campestris</i>
Hard fern	<i>Blechnum spicant</i>
Heath bedstraw	<i>Galium saxatile</i>
Heath speedwell	<i>Veronica officinalis</i>
Heath woodrush	<i>Luzula multiflora</i>
Knotted pearlwort	<i>Sagina nodosa</i>
Ling	<i>Caluna vulgaris</i>
Mouse ear hawkweed	<i>Hieracium pilosella</i>
Perennial ryegrass	<i>Lolium perenne</i>
Ragwort	<i>Senecio jacobaea</i>
Red clover	<i>Trifolium pratense</i>
Red fescue	<i>Festuca rubra</i> agg.
Ribwort plantain	<i>Plantago lanceolata</i>
Selfheal	<i>Prunella vulgaris</i>
Sheep fescue	<i>Festuca ovina</i> agg.
Sheep sorrel	<i>Rumex acetosella</i>
Sweet vernal grass	<i>Anthoxanthum odoratum</i>
Tormentil	<i>Potentilla erecta</i>
White clover	<i>Trifolium repens</i>
Yellow rattle	<i>Rhinanthus minor</i>
Yorkshire fog	<i>Holcus lanatus</i>

Semi-improved acidGrassland

Bell heather	<i>Erica tetralix</i>
Birds foot trefoil	<i>Lotus corniculatus</i>
Common bent	<i>Agrostis capillaris</i>
Common Cat's ear	<i>Hypochaeris radicata</i>
Common milkwort	<i>Polygala serpyllifolia</i>
Creeping willow	<i>Salix repens</i>
Devil's bit scabious	<i>Succisa pratensis</i>
European gorse	<i>Ulex europaeus</i>
Field woodrush	<i>Luzula campestre</i>
Glaucous sedge	<i>Carex flacca</i>
Great burnet	<i>Sanguisorba officinalis</i>
Heath bedstraw	<i>Galium saxatile</i>
Heath spotted orchid	<i>Dactylorhiza maculata</i>
Ling	<i>Calluna vulgaris</i>
Lousewort	<i>Pedicularis sylvatica</i>
Mat-grass	<i>Nardus stricta</i>
Meadow buttercup	<i>Ranunculus repens</i>
Quacking grass	<i>Briza media</i>
Red clover	<i>Trifolium pratense</i>
Red fescue	<i>Festuca rubra</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Sharp-flowered rush	<i>Juncus acutiflorus</i>
Sheep's fescue	<i>Festuca ovina</i>
soft rush	<i>Juncus effusus,</i>
star sedge	<i>Carex echinate.</i>
sweet vernal grass	<i>Anthoxanthum odoratum</i>
Tormentil	<i>Potentilla erecta</i>
White clover	<i>Trifolium repens</i>
Yorkshire fog	<i>Holcus lanatus</i>

Semi-improved neutral grassland

Autumn Hawkbit	<i>Leontodon autumnalis</i>
Black Knapweed	<i>Centaurea nigra</i>
Cat's Ear	<i>Hypochaeris radicata</i>
Common Bent	<i>Agrostis capillaris</i>
Common Bird's-foot-trefoil	<i>Lotus corniculatus</i>
Common Centaury	<i>Centaureum erythraea</i>
Common Mouse Ear	<i>Cerastium fontanum</i>
Common Ragwort	<i>Senecio jacobaea</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Crested Dog's Tail	<i>Cynosurus cristatus</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i> agg.
Devil's-bit scabious	<i>Succisa pratensis</i>

Eyebright	<i>Euphrasia</i> sp.
Field Woodrush	<i>Luzula campestris</i>
Glaucous sedge	<i>Carex flacca</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Mouse Ear Hawkweed	<i>Pilosella officinarum</i>
Perennial Rye-grass	<i>Lolium perenne</i>
Red Clover	<i>Trifolium pratense</i>
Red Fescue	<i>Festuca rubra</i> agg.
Ribwort Plantain	<i>Plantago lanceolata</i>
Rough Hawkbit	<i>Leontodon hispidus</i>
Selfheal	<i>Prunella vulgaris</i>
Sheep's Fescue	<i>Festuca ovina</i>
Sheep's Sorrel	<i>Rumex acetosella</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
White Clover	<i>Trifolium repens</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Species poor semi-improved

Annual Meadow-grass	<i>Poa annua</i>
Birdsfoot trefoil	<i>Lotus corniculatus</i>
Black knapweed	<i>Centaurea nigra</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Cat's ear	<i>Hypochaeris radicata</i>
Common bent	<i>Agrostis capillaris</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Creeping Thistle	<i>Cirsium arvense</i>
Crested Dogs-tail	<i>Cynosurus cristatus</i>
Daisy	<i>Bellis perennis</i>
Foxtail sp.	<i>Alopecurus</i> sp.
Greater Plantain	<i>Plantago major</i>
Heath Wood-rush	<i>Luzula multiflora</i>
Mat-grass	<i>Nardus stricta</i>
Meadow buttercup	<i>Ranunculus acris</i>
Oxeye Daisy	<i>Leucanthemum vulgare</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Pignut	<i>Conopodium majus</i>
Ragwort	<i>Senecio jacobaea</i>
Red clover	<i>Trifolium pratense</i>
Red fescue	<i>Festuca rubra</i> agg.
Ribwort Plantain	<i>Plantago lanceolata</i>
Selfheal	<i>Prunella vulgaris</i>
Spear Thistle	<i>Cirsium vulgare</i>
Sweet vernal grass	<i>Anthoxanthum odoratum</i>
Taraxacum agg	<i>Taraxacum</i> agg.
Tormentil	<i>Potentilla erecta</i>

White clover	<i>Trifolium repens</i>
Yorkshire fog	<i>Holcus lanatus</i>

Marshy grassland/fen/watercourse

Alder	<i>Alnus glutinosa</i>
Black knapweed	<i>Centaurea nigra</i>
Bog speedwell	<i>Veronica beccabunga</i>
Common fleabane	<i>Pulicaria dysenterica</i>
Common sedge	<i>Carex nigra</i>
Cotton grass	<i>Eriophorum angustifolium</i>
Creeping willow	<i>Salix repens</i>
Field forget-me-knot	<i>Myosotis arvensis</i>
Glaucous sedge	<i>Carex flacca</i>
Grey willow	<i>Salix cinerea</i>
Heath spotted orchid	<i>Dactylorhiza maculata</i>
Hemlock water dropwort	<i>Oenanthe crocata</i>
Jointed rush	<i>Juncus articulatus</i>
Lesser spearwort	<i>Ranunculus flammula</i>
Marsh ragwort	<i>Jacobaea aquatica</i>
Marsh st john's wort	<i>Hypericum sp</i>
Marsh thistle	<i>Cirsium palustre</i>
Marsh thistle	<i>Cirsium palustre</i>
Meadow thistle	<i>Cirsium dissectum</i>
Purple moor grass	<i>Molinia caerulea</i>
Quaking grass	<i>Briza media</i>
Ragged robin	<i>Silene flos-cuculi</i>
Ragwort	<i>Jacobaea vulgaris</i>
Soft rush	<i>Juncus effusus</i>
Southern marsh orchid	<i>Dactylorhiza praetermissa</i>
St john's wort	<i>Hypericum tetrapterum</i>
St john's wort	<i>Hypericum tetrapterum</i>
Star sedge	<i>Carex echinata</i>
Tormentil	<i>Potentilla erecta</i>
Water figwort	<i>Scrophularia umbrosa</i>
Water forget-me-not	<i>Myosotis scorpioides.</i>
Yorkshire fog	<i>Holcus lanatus</i>

Scrub and Woodland

Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>

Grey willow	<i>Salix cinerea</i>
Silver birch	<i>Betula pendula</i>
Sessile oak	<i>Quercus petraea</i>
Aspen	<i>Populus tremuloides,</i>
Rowen	<i>Sorbus aucuparia,</i>
Holly	<i>Ilex aquifolium</i>
Hazel	<i>Corylus avellana</i>
Eared willow	<i>Salix aurita</i>
Bluebell	<i>Hyacinthoides non-scripta,</i>
Hard fern	<i>Blechnum spicant,</i>
Lady fern	<i>Athyrium filix-femina,</i>
Remote sedge	<i>Carex remota</i>
Foxglove	<i>Digitalis purpurea,</i>
Creeping soft grass <i>Holcus mollis,</i>	<i>Holcus mollis</i>
Yellow archangel	<i>Lamium galeobdolo,</i>
Wood avens	<i>Geum urbanum,</i>
Common male fern D	<i>Ryopteris filix-mas</i>
Honeysuckle	<i>Lonicera periclymenum.</i>
Bracken	<i>Pteridium aquilinum,</i>
Gorse	<i>Ulex europaeus</i>
Ivy	<i>Hedera helix</i>
Japanese knotweed	<i>Reynoutria japonica</i>
Rhododendron	<i>Ericaceae sp</i>

APPENDIX C

Static (Passive) Activity Survey Results 2020

Recording Period	Unit No.	Start Date	End Date	Survey Hours	Total Av. per hour	Total Registrations	Common Pipistrelle			Soprano Pipistrelle			Myotis Species			Nyctalus Species		
							Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
July	1	01/07/2020	06/07/2020	42:28:14	7.911	336	325	173	7.652	3	3	0.071	6	3	0.141	2	1	0.047
July	2	01/07/2020	06/07/2020	42:28:14	68.683	2917	1243	411	29.267	1134	336	26.701	515	194	12.126	1	1	0.024
July	3	01/07/2020	06/07/2020	42:28:14	26.465	1124	1032	326	24.299	57	27	1.342	23	11	0.542	5	3	0.118
July	4	01/07/2020	06/07/2020	42:28:14	9.913	421	292	139	6.875	68	30	1.601	49	25	1.154	0	0	0.000
July	5	01/07/2020	06/07/2020	42:28:14	6.522	277	230	119	5.416	21	11	0.494	21	11	0.494	5	3	0.118
August	1	10/08/2020	15/08/2020	51:29:17	32.493	1673	1125	680	21.850	349	212	6.778	174	85	3.379	5	4	0.097
August	3	10/08/2020	15/08/2020	51:29:13	59.782	3078	2206	980	42.846	779	301	15.130	47	19	0.913	6	3	0.117
August	5	10/08/2020	15/08/2020	51:29:11	58.812	3028	1760	962	34.184	1059	603	20.569	171	70	3.321	4	3	0.078

Recording Period	Unit No.	Start Date	End Date	Survey Hours	Total Av. per hour	Total Registrations	Pipistrelle Species			Greater Horseshoe			Long Eared Species			Brown Long-eared		
							Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
July	1	01/07/2020	06/07/2020	42:28:14	7.911	336	0	0	0.000	0	0	0.000	0	0	0.000	0	0	0.000
July	2	01/07/2020	06/07/2020	42:28:14	68.683	2917	0	0	0.000	15	6	0.353	2	1	0.047	0	0	0.000
July	3	01/07/2020	06/07/2020	42:28:14	26.465	1124	0	0	0.000	4	1	0.094	0	0	0.000	0	0	0.000
July	4	01/07/2020	06/07/2020	42:28:14	9.913	421	4	2	0.094	0	0	0.000	5	3	0.118	0	0	0.000
July	5	01/07/2020	06/07/2020	42:28:14	6.522	277	0	0	0.000	0	0	0.000	0	0	0.000	0	0	0.000
August	1	10/08/2020	15/08/2020	51:29:17	32.493	1673	1	1	0.019	0	0	0.000	0	0	0.000	6	3	0.117
August	3	10/08/2020	15/08/2020	51:29:13	59.782	3078	14	7	0.272	4	2	0.078	0	0	0.000	1	1	0.019
August	5	10/08/2020	15/08/2020	51:29:11	58.812	3028	4	4	0.078	0	0	0.000	7	2	0.136	0	0	0.000

Recording Period	Unit No.	Start Date	End Date	Survey Hours	Total Av. per hour	Total Registrations	Lesser Horseshoe			Nyctalus / Eptesicus			Serotine		
							Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
July	1	01/07/2020	06/07/2020	42:28:14	7.911	336	0	0	0.000	0	0	0.000	0	0	0.000
July	2	01/07/2020	06/07/2020	42:28:14	68.683	2917	0	0	0.000	0	0	0.000	0	0	0.000
July	3	01/07/2020	06/07/2020	42:28:14	26.465	1124	0	0	0.000	0	0	0.000	0	0	0.000
July	4	01/07/2020	06/07/2020	42:28:14	9.913	421	0	0	0.000	0	0	0.000	2	1	0.047
July	5	01/07/2020	06/07/2020	42:28:14	6.522	277	0	0	0.000	0	0	0.000	0	0	0.000
August	1	10/08/2020	15/08/2020	51:29:17	32.493	1673	1	1	0.019	0	0	0.000	0	0	0.000
August	3	10/08/2020	15/08/2020	51:29:13	59.782	3078	0	0	0.000	1	1	0.019	0	0	0.000
August	5	10/08/2020	15/08/2020	51:29:11	58.812	3028	5	4	0.097	2	2	0.039	0	0	0.000

APPENDIX D: BREEDING BIRD SURVEY RESULTS 2023 & CATEGORISATION OF BREEDING STATUS

Table 1: Surveyors and Conditions

Survey	Surveyor	Date	Cloud (%)	Rain	Wind	Visibility
1	PJP	26.04.23	80-90	None	1-2	V. Good
2	PJP	24.05.23	0-10	None	0-1	Excellent
3	HE	27.06.23	100	None	2-3	Good

Table 2: Surveyors Results

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection ¹	Breeding status ²
Grey heron	<i>Ardea cinerea</i>	-	(+ 1 flyover)	-	Amber list	Non-breeder – F
Kestrel	<i>Falco tinnunculus</i>	-	-	1	Red list	Possible – H
Buzzard	<i>Buteo buteo</i>	(+ 1 flyover)	1	1	Green list	Non-breeder – F
Sparrowhawk	<i>Accipiter nisus</i>	1	-	-	Green list	Possible – H
Lesser-blacked gull	<i>Larus fuscus</i>	-	(+ 1 flyover)	-	Red list	Non-breeder – F
Herring gull	<i>Larus argentatus</i>	-	(+ 3 flyovers)	(+ 6 flyovers)	Red list	Non-breeder – F
Woodpigeon	<i>Columba palumbus</i>	3 (+ 1 flyover)	9 (+ 2 flyovers)	3 (+ 12 flyovers)	Green list	Probable – T
Great spotted woodpecker	<i>Dendrocopos major</i>	3	1 (+ 2 flyovers)	-	Green list	Possible – H
Green woodpecker	<i>Picus viridis</i>	4 (+1 flyover)	1	-	Amber list	Possible – H
Swallow	<i>Hirundo rustica</i>	-	-	(+ 5 flyover)	Green list	Non-breeder – F
Magpie	<i>Pica pica</i>	-	1	-	Amber list	Non-breeder – F
Jackdaw	<i>Corvus monedula</i>	-	1	(+ 14 flyovers)	Green list	Possible – H
Jay	<i>Garrulus glandarius</i>	1 (+ 1 flyover)	4 (+ 2 flyovers)	-	Green list	Possible – H
Carrion crow	<i>Corvus corone</i>	15 (+ 4 flyovers)	2 (+ 6 flyovers)	2 (+ 5 flyovers)	Green list	Non-breeder – F
Rook	<i>Corvus frugilegus</i>	(+ 4 flyovers)	-	-	Red list	Non-breeder – F
Raven	<i>Corvus corax</i>	(+ 4 flyovers)	2	-	Green list	Non-breeder – F
Blue tit	<i>Cyanistes caeruleus</i>	33	24	1	Green list	Probable – P
Great tit	<i>Parus major</i>	24	12	2	Green list	Probable – P
Coal tit	<i>Periparus ater</i>	2	1	2	Amber list	Possible – H, S
Long-tailed tit	<i>Aegithalos caudatus</i>	4 (+ 1 family)	1 and 1 family	-	Green list	Confirmed – FL, P
Pied flycatcher	<i>Ficedula hypoleuca</i>	1	-	-	Amber list	Possible – H
Goldcrest	<i>Regulus regulus</i>	7	2	2	Red list	Possible – H, S
Chiffchaff	<i>Phylloscopus collybita</i>	15	21	4	Green list	Possible – H, S
Willow warbler	<i>Phylloscopus trochilus</i>	30	23	2	Red list	Confirmed – B, T, S
Wood warbler	<i>Phylloscopus sibilatrix</i>	-	2	-	Red list	Possible – H, S

¹ British Trust for Ornithology (2022) Birds of Conservation Concern Wales

² European Ornithological Atlas Committee, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection ¹	Breeding status ²
Blackcap	<i>Sylvia atricapilla</i>	3	16	1	Green list	Possible – H, S
Garden warbler	<i>Sylvia borin</i>	1	3	-	Amber list	Possible – H, S
(Common) Whitethroat	<i>Curruca communis</i>	5	6	-	Red list	Probable – S, T, A
Wren	<i>Troglodytes troglodytes</i>	23	20	5	Green list	Probable - T
Treecreeper	<i>Certhia familiaris</i>	5	1	1	Green list	Possible – H
Nuthatch	<i>Sitta europaea</i>	6	3	-	Green list	Possible – H, S
Skylark	<i>Alauda arvensis</i>	12	24 (+ 1 flyover)	-	Amber list NERC S.41	Probable – P, T
Wheatear	<i>Oenanthe oenanthe</i>	3	-	-	Amber list	Probable - P
Meadow pipit	<i>Anthus pratensis</i>	3	10 (+ 3 flyovers)	10 (+ 4 flyovers)	Red list	Possible – H, S
Pied wagtail	<i>Motacilla alba</i>	3	6	1	Green list	Probable - B
Blackbird	<i>Turdus merula</i>	51	43 (+ 4 flyovers)	3	Green list	Confirmed – FL, P
Song thrush	<i>Turdus philomelos</i>	25	19	4	Green list NERC S.41	Possible – H, S
Mistle thrush	<i>Turdus viscivorus</i>	-	5	-	Amber list NERC S.41	Possible – H
Robin	<i>Erithacus rubecula</i>	38	32	5	Green list	Confirmed - FL
Stonechat	<i>Saxicola torquata</i>	5	1	-	Green list	Probable - P
House sparrow	<i>Passer domesticus</i>	-	-	7	Amber list NERC S.41	Possible – H
Dunnock	<i>Prunella modularis</i>	20	9	4	Amber list NERC S.41	Confirmed – FL
Greenfinch	<i>Carduelis chloris</i>	-	1	-	Red list	Probable - T
Goldfinch	<i>Carduelis carduelis</i>	7 (+ 3 flyovers)	18 (+ 8 flyovers)	1 (+ 1 flyover)	Green list	Probable - P
Bullfinch	<i>Pyrrhula pyrrhula</i>	-	2	-	Amber list	Possible – H
Chaffinch	<i>Fringilla coelebs</i>	5	8	7	Amber list	Probable - P
Linnet	<i>Linaria cannabina</i>	4	11 (+ 6 flyovers)	-	Red list	Probable – P
Cuckoo	<i>Cuculus canorus</i>	3	2	-	Red list	Possible – H, S
Total No. Species		36	41	25	Total: 48	

Table 2: Skylark and Meadow Pipit Results

Species: British Common Name	Species: Latin name	Survey 1		Survey 2		Survey 3	
		Singing	Non-singing	Singing	Non-singing	Singing	Non-singing
Skylark	<i>Alauda arvensis</i>	8	4	10	15	-	-
Meadow pipit	<i>Anthus pratensis</i>	-	3	2	11	-	14

Breeding Status evidence can be broken down into four sections, each with their own codes, as defined by the European Ornithological Atlas Committee:

Confirmed breeder

DD – distraction display or injury feigning

UN – used nest or eggshells found from this season

FL – recently fledged young or downy young

ON – adults entering or leaving nest-site in circumstances indicating occupied nest

FF – adult carrying faecal sac or food for young

NE – nest containing eggs

NY – nest with young seen or heard

Probable breeder - Evidence accumulated during the survey indicates that the bird species is breeding on site.

P – pair in suitable nesting habitat

T – permanent territory (defended over at least 2 survey occasions)

D – courtship and display

N – visiting probable nest site

A – agitated behaviour

I – brood patch of incubating bird (from bird in hand)

B – nest building or excavating nest-hole

Possible breeder - Evidence accumulated during the survey indicates that the bird species could be breeding on site, but the evidence is less conclusive than that obtained for probable breeders.

H – observed in suitable nesting habitat

S – singing male

Non-breeder

F – flying over

M – migrant

U – summering non-breeder

UH – observed in unsuitable nesting habitat