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PRELIMINARY ECOLOGICAL APPRAISAL

LAND ADJACENT TO ANMOR

Arbor Vitae Environment Ltd, Lower Betton Farm, Cross Houses, Shrewsbury, Shropshire, SY5 6JD

Project name:	**Land Adjacent to Anmor, Stryt Las, Rhosllanerchrugog, Wrexham, LL14 2HE**
Grid Reference:	SJ29374576
Date:	31/01/2025
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Requested by:	Roger Parry and Partners

31/01/2025- Additional information pertaining to the wider field site as a whole has been requested by Wrexham Planning Authority.

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1 INTRODUCTION

1.1 BACKGROUND TO DEVELOPMENT

Planning permission will be sought for the construction of an agricultural storage building on a piece of land in Rhosllanerchrugog, Wrexham.

Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

1.2 SCOPE OF SURVEY

The survey is primarily designed to:

- Identify and record habitats and important ecological features on site;
- Evaluate the potential of the proposed development site to provide opportunities for protected species;
- Determine any likely impact which the development and landscape proposals may have on these.
- Identify opportunities for the enhancement of habitats and biodiversity features on site.

1.3 KEY PRINCIPLES

All ecological surveys conducted by Arbor Vitae Environment Ltd are underpinned by the following key principles, as outlined by CIEEM (2018):

Avoidance - Seek options that avoid harm to ecological features (for example, by locating on an alternative site).

Mitigation - Adverse effects should be avoided or minimized through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.

Compensation - Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.

Enhancements - Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

2 SITE DESCRIPTION

2.1 LOCATION, LANDSCAPE, AND BACKGROUND

The site is located on a section of land adjacent to a dwelling named Anmor on the southern boundary of the village of Rhosllannerchrugog. The village can be found in between Wrexham and Llangollen, in Wales.

The land can be accessed from the road named 'Stryt Las' and the nearest major road is the A484, 2km to the east.

The surrounding landscape consists of residential dwellings to the north and the east, in addition to arable fields to the south and the west.

The proposed building will be constructed in a corner of a former coal mining site named Brandie Pits Shaft.

3 SURVEY METHODOLOGY

3.1 DESK STUDY

An initial desk study was composed to gain background information regarding any protected species or designations within the area. The main sources of information were MagicMap, Data Map Wales and NBN Atlas.

3.2 SITE SURVEY

A site visit was made on 31/10/2024. The survey was carried out in accordance with CIEEM (2017) best practice guidelines. The objective of the survey was to find and record any signs of use by protected species and to note the habitat features present.

An assessment of the available habitats both on and adjacent to the site led to consideration of the potential of the site for the following protected species:

- Badger
- Bats
- Breeding birds
- Great Crested Newt
- Hedgehog
- Reptiles

The survey methodology was tailored to evaluate the area for these species in the following ways:

Badger

An area within 50 metres of the site was closely searched for the following signs of badger activity:

- Setts,
- Tracks and footprints,
- Latrines,
- Snuffle holes.

Bats

The site was assessed in terms of its suitability to support bat species. Hedgerow habitat and nearby potential habitat were assessed and recorded and potential impacts from the proposals considered.

Breeding birds

The site was assessed in terms of its suitability to support breeding bird populations. Hedgerow habitat and nearby potential habitat were assessed and recorded.

Great crested newt

A desk study and a ground search were conducted to search for any areas of open water within 250 metres. Waterbodies were then assessed based on the Habitat Suitability Index for great crested newts (Oldham et al., 2000 and ARG UK, 2010).

Hedgehog

The site was assessed in terms of its suitability for hedgehog e.g. areas of rough vegetation, built structures with cavities beneath, availability of feeding areas.

Reptiles

The site was assessed based on its suitability to support reptile populations including connections to terrestrial land from water and suitable resting habitat nearby.

3.3 PERSONNEL

The survey was carried out by Phillipa Stirling MSc ACIEEM: Ecologist. Natural Resources Wales bat licence number: S094220-1 and GCN licence number: S090921/1. Assistant Ecologist: Charlotte Skinner MSc.

3.4 CONSTRAINTS

Breeding birds would not have been present at the time of the survey but previous nesting and appropriate nesting sites would have been apparent.

4 SURVEY RESULTS

4.1 DESK STUDY

The Ecological Data Search found that there are two statutorily designated sites within 1km of the search:

- Johnstown Newt Sites (400m)- Special Area of Conservation. The site includes woodland, heath and scrub, bogs and marshes in addition to inland water bodies. This designated site holds one of GBs largest known great crested newt populations and has been the focus of much conservation management over the last few years.
- Stryt Las a'r Hafod (400m)- Site of Special Scientific Interest- The area mainly consists of wetland and grassland, with a range of amphibian species, including great crested newts (Figure 3).

Results from the desk study revealed that there are several protected and priority species within a 1km radius of the proposed development site (Figure 4), which include mammal species such as common pipistrelle and badger on the boundary of the site. The search also identified a number of bird species within 1km of the site which can be found on the red list (Table 1).

4.2 HABITATS ON SITE

All habitats are classified using JNCC's Phase 1 Habitat Survey Handbook (JNCC, 2010).

Neutral grassland

The site consists of a fairly diverse range of grassland species where there were saturated areas and spoil mounds within the grassland. There is evidence of vehicular access and drainage operations within the site. Whilst aerial photography indicated the site is an emerging woodland, the visit concluded that this is a neutral grassland habitat with very few individual trees within the site. The species recorded within the grassland are as shown below on a DAFOR scale[1]:

[1] D= Dominant, A= Abundant, F= Frequent, O= Occasional, R= Rare.

Dominant	Abundant	Frequent	Occasional	Rare
Common bent Creeping buttercup (within the saturated areas).	Red fescue Meadow foxtail Yorkshire fog Red clover Knapweed Birds foot trefoil Soft rush Hard rush Jointed rush (all rush spp. within saturated areas of grassland).	Sow thistle Ribwort plantain Greater plantain Gorse Common sedge White clover Bristly ox-tongue Cow parsley	Timothy Broadleaved dock Dandelion Spear thistle Upright hedge parsley Bramble	

Bracken

The majority of the building will be located on an area that is currently a section of bracken along the south boundary of the site.

4.3 ADJACENT HABITATS

Neutral grassland and mixed scrub

There are several spoil mounds within the site boundary which have a different species assemblage when compared with the open grassland area. The spoil mounds were dominated by broom, with gorse and teasel also in abundance.

Dominant	Abundant	Frequent	Occasional	Rare
Broom	Teasel Gorse	Common bent Cow parsley Red clover White clover Bristly oxtongue	Spear thistle	

Google street view imagery from 2021 and 2016 indicates that the spoil mounds were once vegetated with what is assumed to be mixed scrub, in the early stages of becoming a climax community before transitioning into woodland. The scrub appears to consist of hazel, hawthorn and *Salix sp.* although it is difficult to identify these from photos.



2021



2016

Bare ground

There is a small patch of bare ground between the proposed building and the adjacent public path gateway.

Native hedgerow

H1: Southern boundary hedgerow with the following species: Holly, Hawthorn and Hazel in addition to bramble and bindweed that leads into the patch of bracken.

H2: Eastern boundary hedgerow with Holly, Hazel, Elder and Ash.

Individual trees

There are two trees within H2:

T1: Early mature Oak tree that had been recently pruned at the time of the survey.

T2: Early mature Oak tree with some minor ivy growth along the trunk and branches.

4.4 PROTECTED SPECIES

Badgers

There are no historical records of badger at the site and no field signs were found within the search area.

Bats

The two trees that are in the western hedgerow were assessed as having 'low' potential as a bat roosting site. T1 has been recently pruned, with limited potential roosting features and T2 had little ivy growth with some small potential roosting features.

The wider site provides foraging and commuting opportunities for local bat populations and there are several mature hedges with trees located to the southern side of the site which provide linear landscape features.

A number of bat species have been recorded between 1992-2021 within 1km of the site, including a daubenton's, whiskered, natterer's, noctule, brown long-eared, common and soprano pipistrelle. The closest record was 146m north-west from the site, which consisted of a noctule, soprano and common pipistrelle, which was recorded in 2007, foraging around the site.

Breeding birds

The area of bracken and adjacent hedges are suitable habitat for generalist bird species.

The neutral grassland is not a suitable habitat for ground nesting birds given the abrupt changes in ground level. There are no open vistas or areas with all-around vantage points, providing predators with an advantage and therefore very unlikely to be adopted by ground nesting birds.

Great Crested Newt

No ponds were identified within 500m of the proposed development site; however, the site is located approximately 400m from the boundary of the Johnstown Newt site (SSSI), which is home to one of the largest known Great Crested Newt populations in Great Britain (JNCC). GCN has been recorded at around 500m from the site. The habitats on site provide suitable terrestrial opportunities for GCN, although there are no potential breeding sites nearby.

Stryt Las a'r Hafod is situated approximately 400m from the site, which is a SSSI, known for supporting one of the largest known breeding populations of the great crested newt in Great Britain, in addition to other common amphibians such as the smooth and palmate newt.

The nearest record of GCN is located 403m north of the site, however, this is located within a residential street, on a round-about, where there are no ponds nearby and no notes or name of the recorder within the record. The second closest is 558m east within Johnstown, that was recorded in 2016 via a torch count.

Hedgehog

The area of bracken and open grassland provide suitable foraging and commuting habitat for hedgehogs, in addition to the surrounding hedgerows. There are also large piles of wood within the adjacent grassland that provides suitable refuge opportunities for the species and foraging sites are plentiful.

Reptiles

The habitats on site provide suitable opportunities for reptile species. There are areas of rough grass in addition to piles of wood within the site that offer suitable refuge for various reptile species. Grass snake has been recorded at 600m from the site previously.

5 POTENTIAL ECOLOGICAL IMPACT

5.1 HABITAT ASSESSMENT

Other neutral grassland

The proposal will result in the loss of a small area of neutral grassland, in addition to a section of bracken. The proposed agricultural building will occupy an area of around 220m2. The loss of a small section of neutral grassland in isolation is of little ecological significance but will require some mitigation in the form of retained/enhanced grassland at the site to ensure that the mosaic of habitats is not damaged or lost as a result of development at the site.

Site plans do not indicate that a new access track will be required, and this has been confirmed by the agent. Without a designated access route to the building, there is a risk that frequent movement over the site will result in the disturbance and degradation of the grassland habitat currently present. It is recommended that a stone track is installed as a designated access point to avoid damage to the wider site.

The agent has also confirmed that the site may be used for light grazing in future which is encouraged. A management regime can be adopted which will help to ensure that the rest of the site retains its species-rich grassland and mosaic of different habitat types.

Native hedgerow

The plans do not involve the removal of any hedgerow and low-density grazing is unlikely to have any impact on the hedges.

Individual trees

The plans do not involve the removal of any individual trees within the site.

5.2 PROTECTED SPECIES ASSESSMENT

Badger

There were no records of badger within 1km of the site and no signs of badger on or adjacent to the site area, therefore, no mitigation for this species is required.

Bats

The two trees that are adjacent to the proposed building were assessed as having ‘low’ potential as a bat roosting site. It is unlikely that plans will result in the installation of artificial lighting and therefore the development is unlikely to impact bat species.

In the case of future lighting installations, a Wildlife Sensitive Lighting scheme will be implemented to avoid any light disturbance for bats and nocturnal species.

Breeding birds

The removal of the area of bracken has the potential to impact breeding birds, therefore, mitigation will be required.

Great crested newt

Studies have demonstrated that 95% of all summer refuges of GCN fall within 63m of their summer breeding pond (Jehle, 2000). Subsequent studies also found that capture rates of GCN were at their highest within 50m of a breeding site with a significant reduction in capture rates beyond 100m (Cresswell and Whitworth, 2004).

Both of the designated sites are located on the far side of the existing town of Rhos. Therefore, the built and developed land provide a significant barrier for terrestrial dispersal for great crested newts.

In addition, there are no ponds within 250m or 500m of the site and the proposals will result in the loss of a very small area of terrestrial habitat. If granted the permission, the proposals will have no negative impact upon the favourable conservation status of GCN within their natural range. Reasonable avoidance measures specific to GCN will be required to remove any residual risk and a long-term management plan in regard to GCN has been created on request of Wrexham Planning Authority.

Hedgehog

The site does offer suitable opportunities for hedgehogs and there are numerous records of the species within 1km of the site. General avoidance measures will be adopted during all construction work on site.

Reptiles

The site provides suitable terrestrial habitat for reptile species and grass snake has been recorded within 1km. No evidence of reptiles was found at the time of the survey but works should proceed based on the likelihood of common reptiles being present locally.

The proposed site for the building does not provide suitable hibernation opportunities for reptiles and therefore winter months offer an appropriate time of year to complete work. As with GCN, a set of avoidance measures will be required.

6 AVOIDANCE, MITIGATION AND ENHANCEMENT

6.1 HABITAT MITIGATION

The remainder of open grassland at the site will be managed in perpetuity for the maintenance and enhancement of the habitat. The following measures will be adopted:

- The site should not be grazed from 15th of May to the 30th July annually to allow all flowering plants in the sward to set seed for the following year.
- If grazing cannot be avoided during this period, the density should be significantly reduced e.g. 2 sheep (0.08 GLU) per hectare.
- Using the sheep to graze the land will create a mosaic affect, providing habitat heterogeneity amongst the swards. This will also allow for the re-development of the mixed scrub patches.
- No artificial fertilizers or herbicides will be applied to the grassland.

6.2 PROTECTED SPECIES MITIGATION

Bats

If it becomes necessary to install artificial lighting at the site, the following measures will be adopted:

- Hedgerows and key habitat features including mature trees on the site will not be illuminated in order to retain dark movement corridors for nocturnal wildlife.
- Any essential security lighting will be set on motion sensors with short timers (<1 minute) and should be LED lighting.
- Any essential external lights will be hooded and directed toward the ground to reduce upward light spill.
- A warm white spectrum will be adopted throughout the scheme to reduce blue light component (<2700Kelvin).
- Internal luminaires will be recessed where installed in proximity to windows to reduce glare and light spill. LED luminaires should be used internally where possible due to their sharp cut-off, lower intensity, and dimming capability.
- Luminaires will always be mounted horizontally with an upward light ratio of 0%.

Breeding birds

In order to mitigate for breeding birds, timing of the works needs to occur in phases.

Clearance of habitats that has the potential to conceal breeding birds, including the bracken, will be completed during winter months, to avoid the breeding season (beginning of March- end of August).

All cut vegetation will be maintained as such, to avoid attracting wildlife into these areas. All material arising from the work will be removed from site immediately.

Once the area has been suitably stripped of vegetation and retained as bare ground, works can proceed to install footings. All works should take place within the red line boundary only and clearance of bracken/grassland habitats will be kept to a minimum.

Great Crested Newts and Reptiles

Legislation

Great Crested Newts (GCN) are a European Protected Species (EPS) and they and their habitats are fully protected under national (Wildlife & Countryside Act 1981 (as amended)) and European law (The Habitats and Species Regulations 2017 (as amended)). The combined legislation makes it illegal to:

- deliberately capture, kill or injure a great crested newt;
- damage or destroy a breeding site or resting place
- intentionally or recklessly obstruct access to any place used for shelter and protection, including resting and breeding places, whether occupied or not;
- deliberately, intentionally or recklessly disturb a great crested newt when in a place of shelter;
- possess a great crested newt, or any part of it, unless acquired lawfully;
- sell, barter, exchange or transport or offer for sale great crested newts or parts of them.

The following species of reptile are protected under the Wildlife & Countryside Act 1981 (as amended): Adder, slow worm, grass snake, smooth snake, common lizard. Smooth snakes and sand lizards are also European Protected species (EPS) which are protected under the Conservation of Habitats and species regulations 2017.

Where it is illegal to:

- disturb them while they occupy a structure or place used for shelter or protection;
- obstruct access to a place of shelter or protection;
- deliberately kill, injure, disturb or capture them;
- deliberately take or destroy their eggs;

- damage or destroy their breeding sites and resting places.

Site induction

- A toolbox talk will be given to all site personnel in order to make them aware of the possible presence of GCN, how to identify this species and the avoidance measures to be used on site.
- A paper copy of the avoidance measures will be retained on site together with the contact details of the GCN licensed ecologist.

Reasonable Avoidance Measures

Timing & duration

- All work should take place during daylight hours when GCN are unlikely to be moving around the area.
- The proposed amphibian hibernacula will be created following the completion of works and when amphibians will not be active above ground (November-February).

Site clearance

- All grassland to be disturbed on site will be maintained at a height of 10cm before March (in any given year) in order to reduce the number of potential resting/feeding opportunities on site.
- Any possible objects which may conceal GCN such as large stones, logs or other materials will be inspected and removed from site. If any GCN are found, work should stop and NRW contacted for guidance on appropriate action. Works may only resume on receipt of the appropriate licence issued by NRW.
- A fingertip search of the land will be completed by an experienced ecologist prior to work on site starting.

Site compound

- The site compound will be situated at the entrance point where there is an area of existing crushed stone to avoid creating GCN resting places beneath stored materials etc.
- All site materials will be stored on pallets or other raised objects to avoid creating resting places/refuges for GCN.
- Any toxic or poisonous materials should be safely stored within a locked container.

Construction methods and special precautions

- All excavations on site will be covered at night or ramps will be provided to allow amphibians to exit excavations. All excavations will be checked for amphibians each morning prior to the re-commencement of works.
- All exposed new pipework and drains will be capped at night so as to avoid trapping amphibians.
- All excavated materials/waste will be stored in skips or similar and not on the ground where it could be used as a refuge/resting area by amphibians. Alternatively, all waste will be removed from site daily unless being used to create the amphibian hibernacula.
- All stored building materials that might be used as temporary resting places by amphibians will be stored off the ground on pallets or similar.

If GCN are found at any point during the development or activities outlined above, works will stop and an appropriately qualified ecologist will be contacted for advice, as well as Natural Resources Wales. Contractors are prohibited from handling GCN.

Habitat creation and management

Within the GCN long-term management plan is a habitat creation and management plan, which includes the creation of native scrub, amphibian hibernacula and the management of hedgerows and grassland.

6.3 ECOLOGICAL ENHANCEMENT

It is recommended that a minimum of 3x native broadleaved trees are planted at the site. The trees will be suitably guarded and fitted with supports. Species may include: oak, field maple, rowan or other suitable native species.

7 SUMMARY

Planning permission will be sought for the construction of an agricultural storage building. Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species. The proposed building will be constructed in a corner of a former coal mining site named Brandie Pits Shaft.

The proposal will result in the loss of an area neutral grassland, in addition to a section of bracken. The loss of a small section of neutral grassland is of very little ecological significance but will require some mitigation.

There were no records of badger within 1km of the site, and no signs of badger at the site. No further survey work or mitigation for this species is required.

The two trees that are adjacent to the proposed building were assessed as having 'low' potential as a bat roosting site. A Wildlife Sensitive Lighting scheme will be implemented when planning the external lighting for the proposed building, to avoid any light disturbance for bats and nocturnal species.

The removal of the area of bracken has the potential to impact breeding birds, therefore, mitigation will be required.

Due to the vicinity of the Johnstown Newt site and Stryt Las a'r Hafod, reasonable avoidance measures specific to GCN will be implemented and a long term management plan has been prepared.

The site is suitable for reptile species, therefore general avoidance measures will be adopted during all work on site

A minimum of 3x native trees will be planted at the site to provide additional benefit for biodiversity.

8 REFERENCES

ARG UK (2010). ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom

Bat Conservation Trust (2018) Bats and artificial lighting in the UK. *Bats and the Built Environment series,* Guidance Note 08/18. Institution of Lighting Professionals.

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

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

Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London.

Cresswell, W. and Whitworth, R., 2004. An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt. Natural England Research Reports, p.36.

CYNGOR CEFN GWLAD CYMRU COUNTRYSIDE COUNCIL FOR WALES. (n.d.). Available at: https://naturalresources.wales/media/663230/SSSI_1376_Citation_EN001202e.pdf [Accessed 22 Nov. 2024].

Edgar, P., Foster, J. and Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.

Gent, A.H., and Gibson, S.D, *eds* (2003) *Herpetofauna workers' manual.* Peterborough, Joint Nature Conservation Committee.

GOV.UK. (2015) Badgers: surveys and mitigation for development projects. [online] Available at: [Accessed 29 October 2021].

Harris, S., Creswell, P. and Jefferies, D. (1989) Surveying Badgers. 1st ed. London: The Mammal Society, pp.3-21.

Hundt L (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust.

Jehle, Robert. (2000). The terrestrial summer habitat of radio-tracked great crested newts (Triturus cristatus) and marbled newts (T. marmoratus). Herpetological Journal. 10. 137-142.

JNCC (n.d.). *Great crested newt (Triturus cristatus) - Special Areas of Conservation*. [online] sac.jncc.gov.uk. Available at: https://sac.jncc.gov.uk/species/S1166/.

JNCC (2010) Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 7.

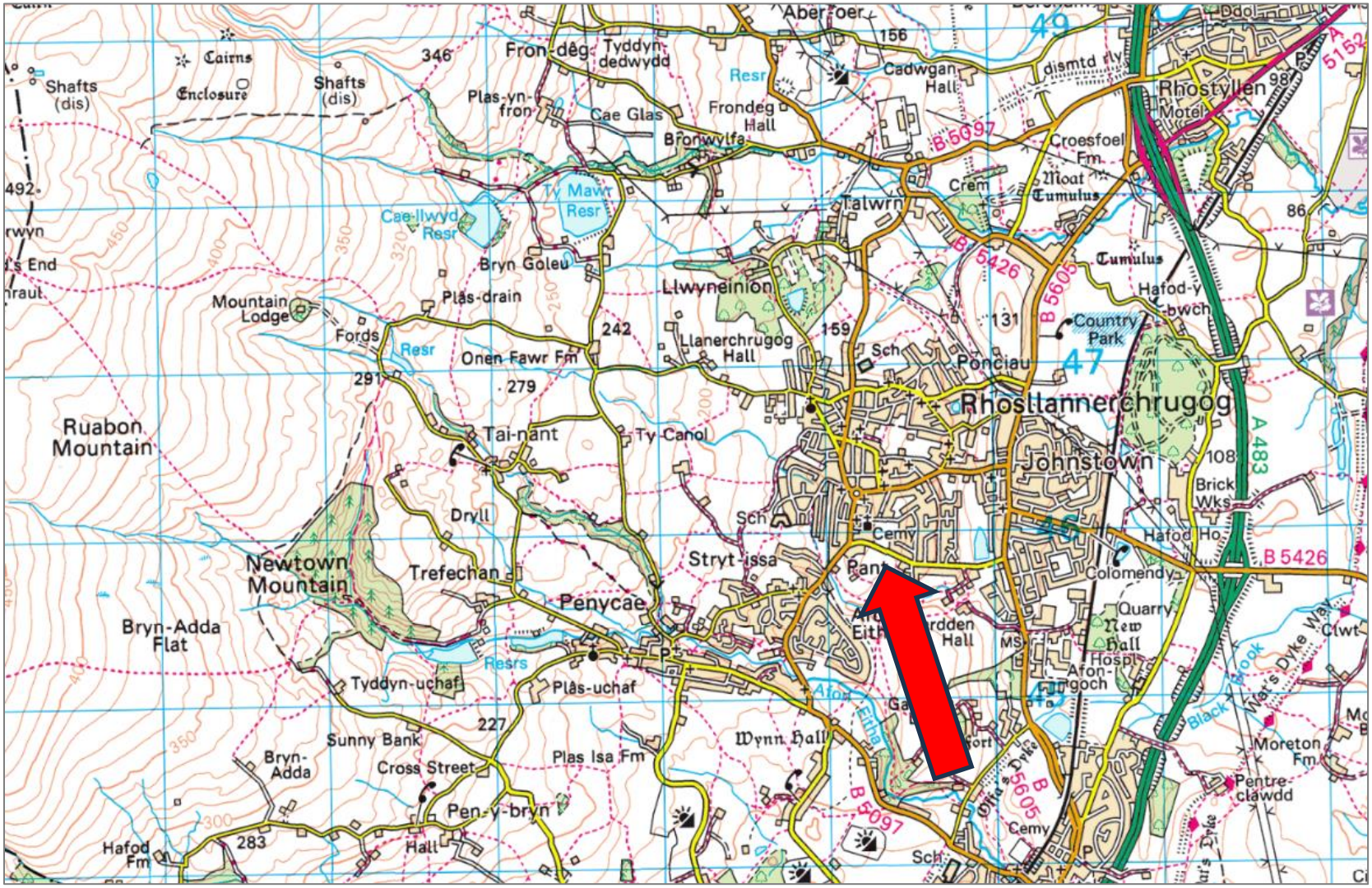
Mitchell-Jones, T. (2004) Bat mitigation guidelines. External Relations Team, English Nature.

Natural England (2002) Badgers and Development. 1st ed. Peterborough: Natural England, pp.2- 12.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10(4), 143-155.

People's Trust for Endangered Species (2019) Hedgehogs and development. British Hedgehog Preservation Society. Accessed 11/04/2023.

FIGURE 1 LOCATION

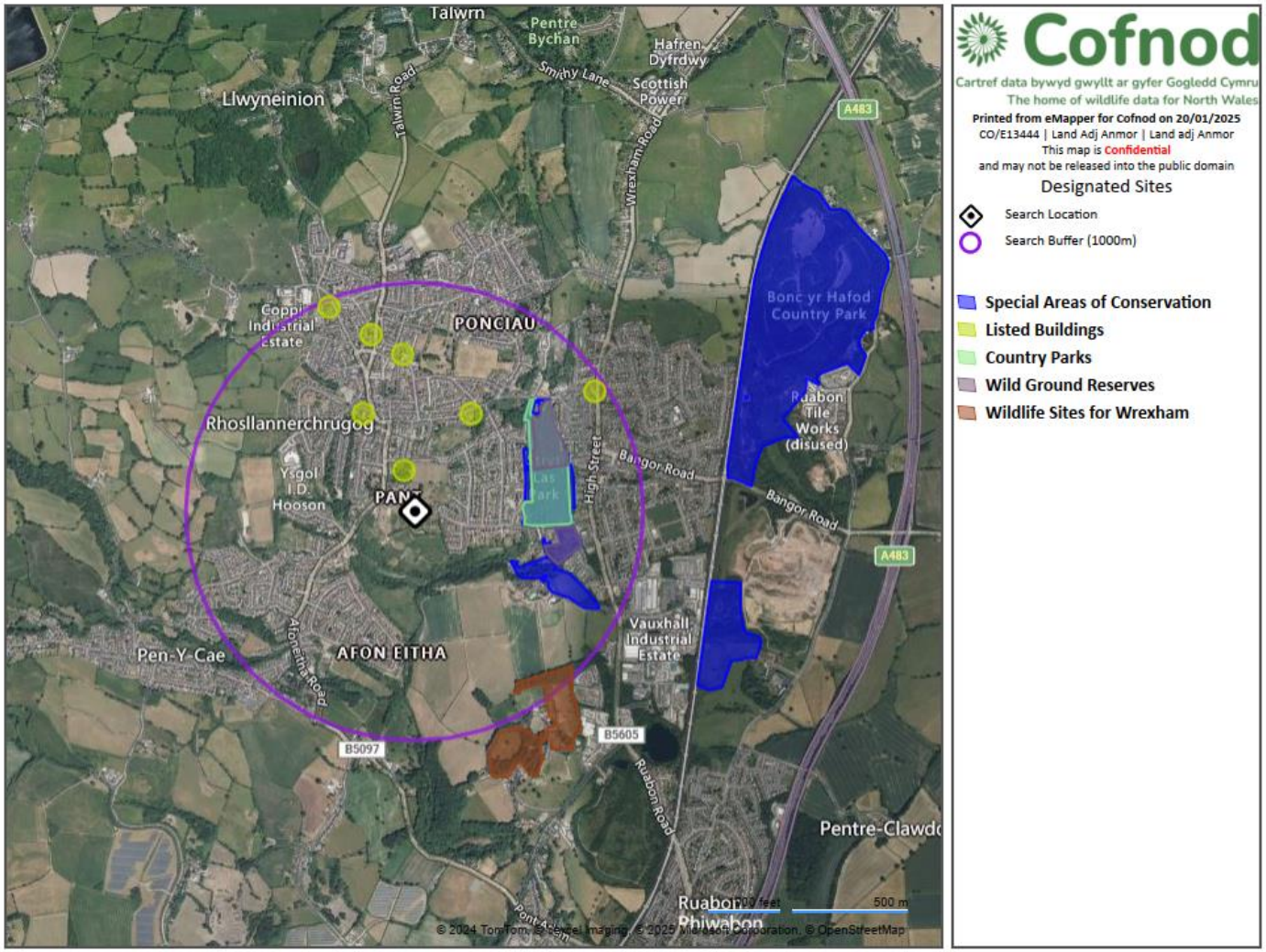


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FIGURE 2 AERIAL PHOTOGRAPH

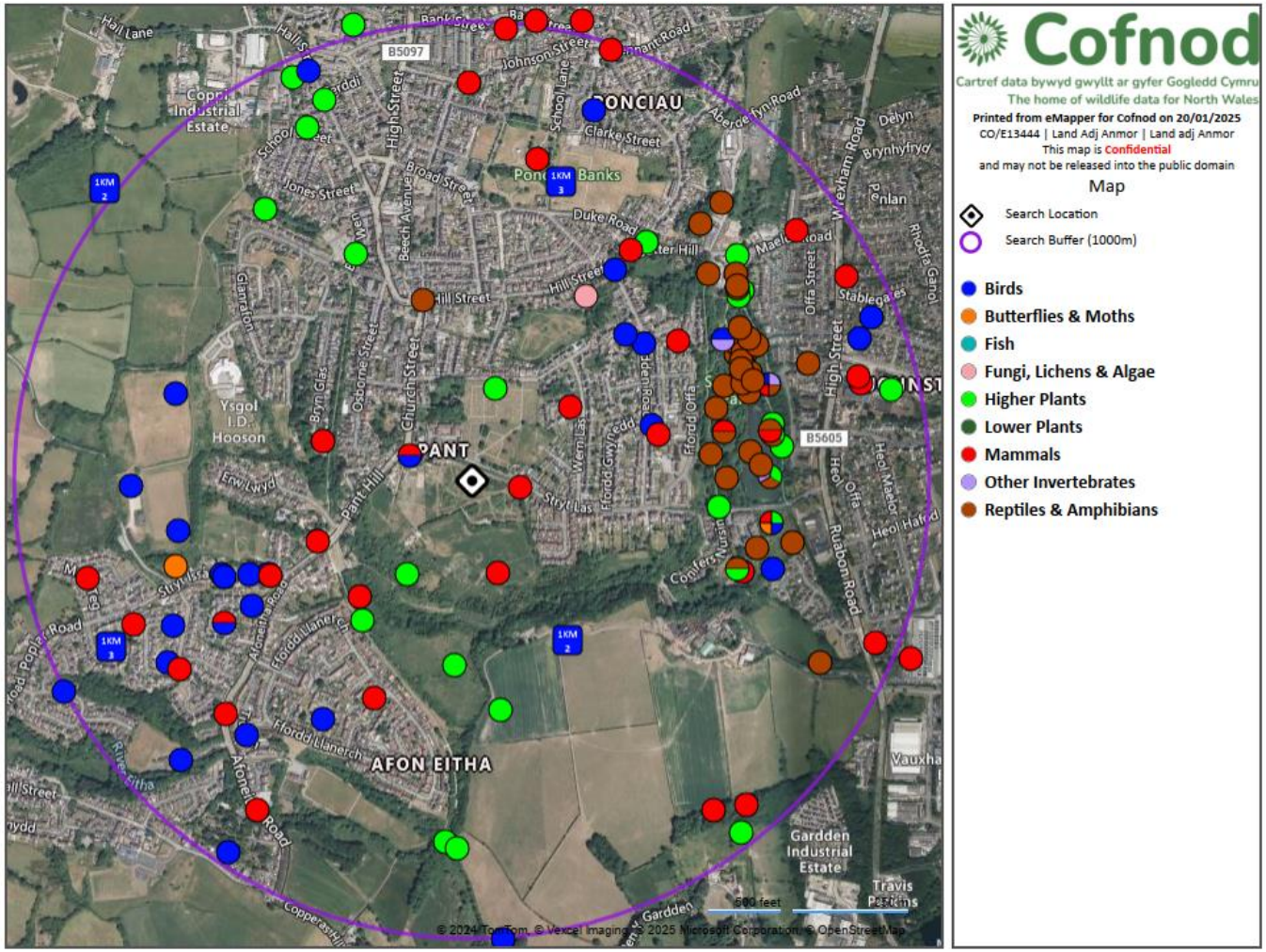


FIGURE 3 DESIGNATED SITES WITHIN 1KM



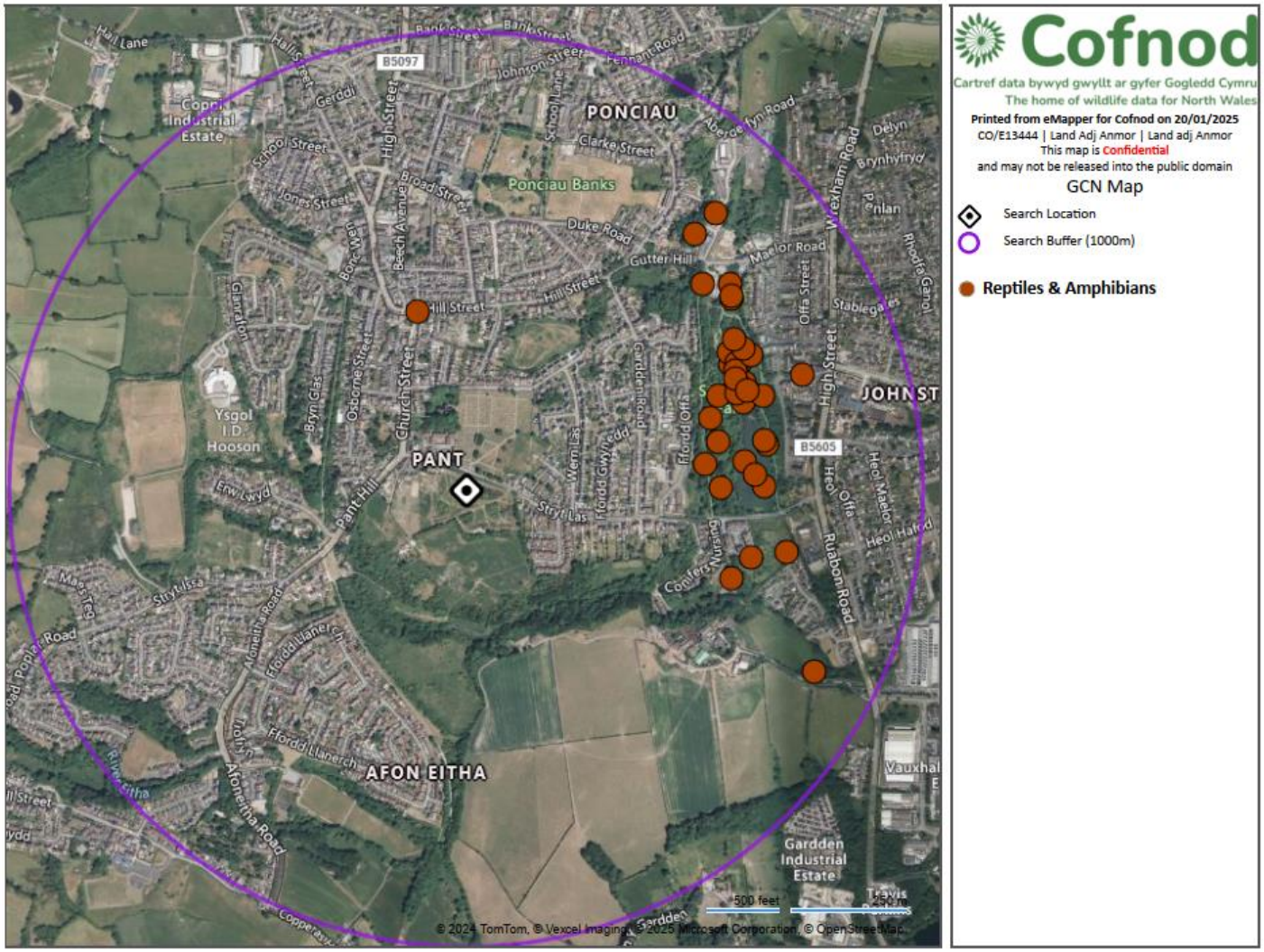
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FIGURE 4 PROTECTED AND PRIORITY SPECIES WITHIN 1KM



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FIGURE 5 AMPHIBIAN RECORDS WITHIN 1KM



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FIGURE 6 BASELINE HABITAT MAP



APPENDIX 1 PHOTOGRAPHS

	
Area of proposed development.	Neutral grassland.
	
T2 in H2.	T1 In H2.
	
Surrounding neautral grassland with piles of wood.	T1 and T2.

	
Exsiting access into site from road.	Crushed stone area.
	
Neutral grassland with mounds of scrub.	Bare ground patch within the grassland and adjacent public footpath on the eastern boundary.

APPENDIX 2- TABLE 1 PROTECTED AND PRIORITY SPECIES (DESK STUDY) WITHIN 1KM

Scientific Name	**Common Name**	**Total Records**	**Lists**
Amphibian			
Bufo bufo	Common Toad	25	BAP, Bern3, S7, WCA5
Lissotriton		275	Bern3, WCA5
Lissotriton helveticus	Palmate Newt	33	Bern3, WCA5
Lissotriton vulgaris	Smooth Newt	165	Bern3, WCA5
Rana temporaria	Common Frog	68	Bern3, HDir5, WCA5
Triturus cristatus	Great Crested Newt	174	BAP, Bern2, CHS2, HDir2, HDir4, S7, WCA5
Birds			
Acanthis cabaret	Lesser Redpoll	3	BAP, S7, WBR
Alauda arvensis	Skylark	1	BAP, BDir2.2, S7, UKBR, WBA
Alcedo atthis	Kingfisher	1	BDir1, Bern2, WBA, WCA1.1
Chroicocephalus ridibundus	Black-headed Gull	42	BDir2.2, RL-VU, S7, UKBA, WBR
Emberiza schoeniclus	Reed Bunting	9	BAP, Bern2, S7, UKBA, WBA
Falco tinnunculus	Kestrel	11	Bern2, Bonn2, CITES-A, RL-VU, S7, UKBA, WBR
Fringilla montifringilla	Brambling	3	WCA1.1
Larus argentatus	Herring Gull	23	BAP, BDir2.2, RL-DD, RL-EN, S7, UKBR, WBR
Linaria cannabina	Linnet	2	BAP, Bern2, RL-NT, S7, UKBR, WBR
Milvus milvus	Red Kite	1	BDir1, Bonn2, CITES-A, WBA, WCA1.1, WCA9
Muscicapa striata	Spotted Flycatcher	2	BAP, Bern2, Bonn2, S7, UKBR, WBR
Numenius arquata	Curlew	1	BAP, BDir2.2, Bonn2, RL-EN, S7, UKBR, WBR
Passer domesticus	House Sparrow	60	BAP, S7, UKBR, WBA
Phoenicurus ochruros	Black Redstart	1	Bern2, RL-EN, RL-NT, UKBA, WBA, WCA1.1
Phylloscopus sibilatrix	Wood Warbler	1	BAP, RL-VU, S7, UKBR, WBR
Prunella modularis	Dunnock	62	BAP, Bern2, S7, UKBA
Pyrrhula pyrrhula	Bullfinch	32	BAP, S7, UKBA, WBR
Sturnus vulgaris	Starling	24	BAP, BDir2.2, RL-VU, S7, UKBR, WBR

Turdus iliacus	Redwing	21	BDir2.2, RL-CR, UKBA, WBA, WCA1.1
Turdus philomelos	Song Thrush	34	BAP, BDir2.2, S7, UKBA, WBA
Turdus pilaris	Fieldfare	9	BDir2.2, RL-PX, UKBR, WBA, WCA1.1
Tyto alba	Barn Owl	4	Bern2, CITES-A, WBA, WCA1.1, WCA9
Accipiter nisus	Sparrowhawk	7	Bonn2, CITES-A, RL-NT, UKBA
Aegithalos caudatus	Long-tailed Tit	38	WBA
Anas crecca	Teal	2	BDir2.1, Bonn2, CITES-C, UKBA, WBA
Anas platyrhynchos	Mallard	50	BDir2.1, Bonn2, RL-NT, UKBA, WBA
Vanellus vanellus	Lapwing	5	BAP, BDir2.2, Bonn2, RL-EN, RL-VU, S7, UKBR, WBR
Anser anser	Greylag Goose	1	BDir2.1, Bonn2, UKBA, WCA1.2
Apus apus	Swift	40	RL-EN, UKBR, WBA
Ardea cinerea	Grey Heron	1	RL-NT
Aythya ferina	Pochard	7	BDir2.1, Bonn2, GBNNSIP, RL-EN, UKBR, WBR
Aythya fuligula	Tufted Duck	52	BDir2.1, Bonn2, WBA
Bucephala clangula	Goldeneye	1	BDir2.2, Bonn2, RL-VU, UKBR, WCA1.2
Chloris chloris	Greenfinch	38	Bern2, RL-EN, UKBR
Columba oenas	Stock Dove	2	BDir2.2, UKBA
Columba palumbus	Woodpigeon	85	BDir2.1, UKBA
Corvus frugilegus	Rook	16	BDir2.2, RL-NT, UKBA
Curruca communis	Whitethroat	2	UKBA, WBA
Cygnus olor	Mute Swan	17	BDir2.2, Bonn2, GBNNSIP, WBA
Delichon urbicum	House Martin	7	Bern2, RL-VU, UKBR, WBA
Fulica atra	Coot	56	BDir2.1, RL-NT
Gallinago gallinago	Snipe	13	BDir2.1, Bonn2, RL-NT, UKBA, WBA
Gallinula chloropus	Moorhen	38	BDir2.2, Bonn2, RL-VU, UKBA
Hirundo rustica	Swallow	11	Bern2, WBA
Larus canus	Common Gull	8	BDir2.2, UKBA, WBR
Larus fuscus	Lesser Black-backed Gull	12	BDir2.2, RL-DD, UKBA, WBA
Larus glaucoides	Iceland Gull	1	RL-VU, UKBA
Motacilla cinerea	Grey Wagtail	7	Bern2, RL-NT, UKBA
Periparus ater	Coal Tit	35	Bern2, WBA

Phylloscopus trochilus	Willow Warbler	7	UKBA, WBR
Regulus regulus	Goldcrest	3	Bern2, WBA
Streptopelia decaocto	Collared Dove	48	BDir2.2, GBNNSIP, RL-NT
Strix aluco	Tawny Owl	2	Bern2, CITES-A, RL-NT, UKBA
Sylvia borin	Garden Warbler	1	WBA
Troglodytes troglodytes	Wren	37	Bern2, UKBA
Branta canadensis	Canada Goose	14	BDir2.1, Bonn2, GBNNSIP, INNS, INNS-W, WCA9
Branta canadensis	Canada Goose	14	BDir2.1, Bonn2, GBNNSIP, INNS, INNS-W, WCA9
Turdus viscivorus	Mistle Thrush	13	BDir2.2, RL-VU, UKBR
Insect			
Tyria jacobaeae	Cinnabar	2	BAP, S7
Harmonia axyridis	Harlequin Ladybird	2	GBNNSIP, INNS
Agelastica alni	Alder Leaf Beetle	1	RDB-NR, RL-DD
Sympetrum striolatum	Common Darter	14	RL-DD
Reptile			
Natrix helvetica	Grass Snake	4	BAP, Bern3, S7, WCA5
Mammal			
Arvicola amphibius	Water Vole	2	BAP, RL-EN, S7, WCA5, WRL-TM[EN]
Chiroptera	Bat	4	Bern2, Bonn2, CHS2, HDir4, WCA5
Erinaceus europaeus	Hedgehog	24	BAP, Bern3, RL-VU, S7, WRL-TM[VU]
Lutra lutra	Otter	2	BAP, Bern2, CHS2, CITES-A, HDir2, HDir4, S7, WCA5, WRL-TM[VU]
Meles meles	Badger	6	Bern3, PBA
Myotis	Myotis Bat species	2	Bern2, Bonn2, CHS2, HDir4, WCA5
Myotis daubentonii	Daubenton's Bat	1	Bern2, Bonn2, CHS2, HDir4, WCA5
Myotis mystacinus/brandtii	Whiskered/Brandt's Bat	1	Bern2, Bonn2, CHS2, HDir4, RL-DD, WCA5
Myotis nattereri	Natterer's Bat	1	Bern2, Bonn2, CHS2, HDir4, WCA5
Nyctalus noctula	Noctule	3	BAP, Bern2, Bonn2, CHS2, HDir4, S7, WCA5

Pipistrellus	Pipistrelle Bat species	4	Bern2, Bonn2, CHS2, HDir4, S7, WCA5
Pipistrellus pipistrellus	Common Pipistrelle	10	Bonn2, CHS2, HDir4, S7, WCA5
Pipistrellus pygmaeus	Soprano Pipistrelle	6	BAP, Bern2, Bonn2, CHS2, HDir4, S7, WCA5
Plecotus auritus	Brown Long-eared Bat	3	BAP, Bern2, Bonn2, CHS2, HDir4, S7, WCA5
Sciurus carolinensis	Grey Squirrel	1	GBNNSIP, INNS-IAS, INNS-W, WCA9
Fish			
Cyprinus carpio	Common Carp	1	GBNNSIP, INNS, INNS-W
Plants			
Hyacinthoides non-scripta	Bluebell	4	WCA8
Meconopsis cambrica	Welsh Poppy	2	LI-VP-48[LS], LI-VP-49[LS], RDB-NS
Acer campestre	Field Maple	7	LI-VP-48[LS], LI-VP-49[LS]
Aethusa cynapium	Fool's Parsley	3	LI-VP-48[LR]
Artemisia absinthium	Wormwood	1	GBNNSIP, LI-VP-48[LS], LI-VP-50[LNS]
Avena fatua	Wild-oat	1	GBNNSIP, LI-VP-49[LR]
Barbarea vulgaris	Winter-cress	1	LI-VP-48[LS]
Blackstonia perfoliata	Yellow-wort	1	LI-VP-48[LR], LI-VP-49[LS], LI-VP-52[LS]
Bromopsis ramosa	Hairy-brome	3	LI-VP-48[LS]
Callitriche platycarpa	Various-leaved Water-starwort	1	LI-VP-48[LS], LI-VP-49[LS], LI-VP-50[LR], LI-VP-51[LR], LI-VP-52[LR]
Carex pendula	Pendulous Sedge	1	LI-VP-48
Convolvulus arvensis	Field Bindweed	1	LI-VP-48
Cruciata laevipes	Crosswort	3	LI-VP-49[LS], LI-VP-52[LS]
Dactylorhiza fuchsii	Common Spotted-orchid	3	LI-VP-48
Dipsacus fullonum	Wild Teasel	2	LI-VP-48[LR]
Epilobium parviflorum	Hoary Willowherb	3	LI-VP-48
Euphorbia lathyris	Caper Spurge	2	CITES-B, GBNNSIP, LI-VP-49[LS]
Fallopia convolvulus	Black-bindweed	1	GBNNSIP, LI-VP-48[LS]
Festuca arundinacea x Lolium perenne = X Festulolium holmbergii		1	LI-VP-51

Fumaria capreolata subsp. babingtonii	Ramping Fumitory	1	LI-VP-50[LNS]
Geranium pusillum	Small-flowered Crane's-bill	1	LI-VP-48[LR], LI-VP-49[LS], LI-VP-52[LS]
Jacobaea erucifolia	Hoary Ragwort	3	LI-VP-48[LR], LI-VP-49[LS], LI-VP-52[LS]
Juncus inflexus	Hard Rush	10	LI-VP-48[LR]
Lamiastrum galeobdolon subsp. montanum		1	LI-VP-48[LS], LI-VP-49[LS]
Lathyrus nissolia	Grass Vetchling	1	LI-VP-49[LR], LI-VP-51[LS]
Leontodon hispidus	Rough Hawkbit	2	LI-VP-52[LS]
Lysimachia nummularia	Creeping-Jenny	1	LI-VP-48, LI-VP-49[LS]
Matricaria chamomilla	Scented Mayweed	2	GBNNSIP, LI-VP-48[LS]
Melilotus altissimus	Tall Melilot	1	GBNNSIP, LI-VP-49[LR]
Milium effusum	Wood Millet	1	LI-VP-48[LS], LI-VP-49[LS], LI-VP-52[LR]
Myriophyllum spicatum	Spiked Water-milfoil	1	LI-VP-48[LR], LI-VP-50[LS], LI-VP-51[LS]
Ophrys apifera	Bee Orchid	1	CITES-B, LI-VP-48[LR], LI-VP-49[LS]
Oxybasis rubra	Red Goosefoot	2	LI-VP-49[LS]
Papaver dubium	Long Smooth-headed Poppy	1	GBNNSIP, LI-VP-52
Persicaria amphibia	Amphibious Bistort	3	LI-VP-48
Persicaria hydropiper	Water-pepper	1	LI-VP-51[LS]
Potamogeton berchtoldii	Small Pondweed	3	LI-VP-48[LS], LI-VP-49[LS], LI-VP-51[LS]
Pulicaria dysenterica	Common Fleabane	1	LI-VP-48[LS]
Ranunculus aquatilis	Common Water-crowfoot	1	LI-VP-48
Ranunculus trichophyllus	Thread-leaved Water-crowfoot	1	LI-VP-48[LR], LI-VP-49[LS], LI-VP-50[LS], LI-VP-51[LS]
Reseda luteola	Weld	2	GBNNSIP, LI-VP-48[LS]
Sagina apetala	Annual Pearlwort	1	LI-VP-51
Sagina apetala subsp. apetala		1	LI-VP-51[LR]
Salix caprea x cinerea = S. x reichardtii		1	LI-VP-52[LS]

Salix cinerea subsp. oleifolia	Rusty Willow	5	LI-VP-52
Schoenoplectus lacustris	Common Club-rush	2	LI-VP-48, LI-VP-49[LS], LI-VP-51[LR]
Silene latifolia	White Campion	1	GBNNSIP, LI-VP-48[LS]
Tanacetum parthenium	Feverfew	6	GBNNSIP, LI-VP-48
Tanacetum vulgare	Tansy	1	LI-VP-48[LS]
Tragopogon pratensis	Goat's-beard	1	LI-VP-48[LS]
Tripleurospermum inodorum	Scentless Mayweed	4	GBNNSIP, LI-VP-48[LS]
Trisetum flavescens	Yellow Oat-grass	4	LI-VP-48[LS]
Veronica agrestis	Green Field-speedwell	1	GBNNSIP, LI-VP-48[LS]
Viburnum opulus	Guelder-rose	1	LI-VP-48, LI-VP-52[LS]
Vicia tetrasperma	Smooth Tare	1	LI-VP-48[LS], LI-VP-49[LR], LI-VP-51, LI-VP-52[LS]
Viola arvensis	Field Pansy	1	GBNNSIP, LI-VP-48[LS]
Vulpia myuros	Rat's-tail Fescue	2	GBNNSIP, LI-VP-49[LS]
Cotoneaster horizontalis	Wall Cotoneaster	1	GBNNSIP, INNS, INNS-W, WCA9
Cotoneaster simonsii	Himalayan Cotoneaster	1	GBNNSIP, INNS, INNS-W, WCA9
Crassula helmsii	New Zealand Pigmyweed	10	GBNNSIP, INNS, INNS-W, WCA9
Crocosmia pottsii x aurea = C. x crocosmiiflora	Montbretia	3	GBNNSIP, INNS, INNS-W, WCA9
Fallopia japonica	Japanese Knotweed	18	GBNNSIP, INNS, INNS-W, WCA9
Impatiens glandulifera	Himalayan Balsam	1	GBNNSIP, INNS, INNS-IAS, INNS-W, WCA9
Lagarosiphon major	Curly Waterweed	1	GBNNSIP, INNS, INNS-IAS, INNS-W, WCA9
Lamiastrum galeobdolon subsp. argentatum	Variegated Yellow Archangel	1	GBNNSIP, INNS, INNS-W, WCA9
Leycesteria formosa	Himalayan Honeysuckle	1	GBNNSIP, INNS
Myriophyllum aquaticum	Parrot's-feather	1	GBNNSIP, INNS, INNS-IAS, INNS-W, WCA9
Prunus laurocerasus	Cherry Laurel	5	GBNNSIP, INNS, INNS-W

Rhododendron ponticum		2	GBNNSIP, INNS, INNS-W, WCA9
Sedum album	White Stonecrop	4	GBNNSIP, INNS
Buddleja davidii	Butterfly-bush	6	GBNNSIP, INNS-W
Cotoneaster horizontalis	Wall Cotoneaster	1	GBNNSIP, INNS, INNS-W, WCA9
Cotoneaster simonsii	Himalayan Cotoneaster	1	GBNNSIP, INNS, INNS-W, WCA9
Crassula helmsii	New Zealand Pigmyweed	10	GBNNSIP, INNS, INNS-W, WCA9
Crocosmia pottsii x aurea = C. x crocosmiiflora	Montbretia	3	GBNNSIP, INNS, INNS-W, WCA9
Fallopia japonica	Japanese Knotweed	18	GBNNSIP, INNS, INNS-W, WCA9
Impatiens glandulifera	Himalayan Balsam	1	GBNNSIP, INNS, INNS-IAS, INNS-W, WCA9
Lagarosiphon major	Curly Waterweed	1	GBNNSIP, INNS, INNS-IAS, INNS-W, WCA9
Lamiastrum galeobdolon subsp. argentatum	Variegated Yellow Archangel	1	GBNNSIP, INNS, INNS-W, WCA9
Myriophyllum aquaticum	Parrot's-feather	1	GBNNSIP, INNS, INNS-IAS, INNS-W, WCA9
Prunus laurocerasus	Cherry Laurel	5	GBNNSIP, INNS, INNS-W
Rhododendron ponticum		2	GBNNSIP, INNS, INNS-W, WCA9
Vinca major	Greater Periwinkle	1	GBNNSIP, INNS-W
Clavulinopsis corniculata	Meadow Coral	1	CHEGD
Scapania scandica	Norwegian Earwort	1	LI-BR-51[LR]
Campylium protensum		1	LI-BR-49[LR]
Hygroamblystegium varium	Willow Feather-moss	1	LI-BR-48[LR], LI-BR-49[EX], LI-BR-50[LR], LI-BR-51[LR], LI-BR-52[LR]
Polystichum aculeatum	Hard Shield-fern	1	LI-VP-48, LI-VP-49[LS]
Polystichum setiferum	Soft Shield-fern	1	LI-VP-48
Picea sitchensis	Sitka Spruce	1	GBNNSIP, INNS-W
Pinus sylvestris	Scots Pine	1	RDB-NS