Gwern-y-To Farm, Threapwood
Preliminary Ecological Appraisal

June 2024



Dunelm Ecology
consultant ecologists

Contents

1 Introduction 2
1.1 Background 2
1.2 Aims and Objectives 2
1.3 Legislative and Policy Context 2
2 Methods and Approach 6
2.1 Field Survey 6
2.2 Personnel 6
2.3 Survey Constraints 7
2.4 Ecological Evaluation 7
3 Results 8
3.1 Field Survey 8
4 Discussion and Recommendations 10
4.1 Evaluation 10
4.2 Assessment 10
4.3 Mitigation and Recommendations 11
5 References 14

1 Introduction

1.1 Background

1.1.1 Dunelm Ecology Ltd was commissioned to undertake a preliminary ecological appraisal (PEA) at Gwern-y-To Farm, Threapwood. The survey was carried out in support of a planning application to build a new dwelling house and create a new site access road along with landscaping works.

1.2 Aims and Objectives

1.2.1 The main objective of the assessment was to identify the presence of any priority/protected species and habitats within the application site. This report provides an overview of the legislation and policies relevant to protected species and habitats within the Wales. Also included are a description of the methods used and the results of the ecological appraisal. The implications of the survey findings are discussed, with an assessment of potential impacts provided and recommendations to prevent, reduce and/or offset any adverse ecological impacts.

1.3 Legislative and Policy Context

1.3.1 A range of legislation has been established in the UK to protect important nature conservation sites and species. This includes the Wildlife and Countryside Act (WCA) (1981) (as amended), Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Section 14 of the WCA 1981 also makes it an offence to spread or release into the wild certain plants and animals which may cause ecological, environmental, or socio-economic harm. These are listed under Schedule 9 of the Act.

1.3.2 Other international conventions include: the Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979), which requires the maintenance of populations of wild flora and fauna, giving particular protection to endangered and vulnerable species; and the Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979), which requires the protection of migratory species throughout their entire range. The above conventions are implemented in England and Wales via the Wildlife and Countryside Act (WCA) (1981) (as amended) and Countryside and Rights of Way (CRoW) Act 2000. This legislation also protects important habitats and sites such as Sites of Special Scientific Interest (SSSI). Section 14 of the Wildlife and Countryside Act 1981 also makes it an offence to release into the wild certain plants and animals which may cause ecological, environmental, or socio-economic harm. These are listed under Schedule 9 of the Act.

1.3.3 The Hedgerows Regulations 1997 regulate hedgerow removal and affords increased protection to those meeting certain ecological, landscape, cultural or archaeological criteria.

1.3.4 The Protection of Badgers Act 1992 protects badgers and their setts from persecution. The purpose of this Act was, therefore, animal welfare as opposed to concern over the conservation status of this mammal, which is common and

widespread across much of rural Britain. However, the Act also contains restrictions that apply more widely, and have relevance to developers.

1.3.5 The Environment (Wales) Act became law in 2016 and includes legislation that supersedes the Natural Environment and Rural Communities (NERC) Act 2006.

1.3.6 Section 6 of the Act sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act. It places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In doing so, public authorities must also seek to 'promote the resilience of ecosystems.' Public authorities will be required to report on the actions they are taking to improve biodiversity and promote ecosystem resilience.

1.3.7 Section 7 replaces the duty in Section 42 of the NERC Act 2006. The Welsh Ministers will publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of principle importance for the conservation and enhancement of biodiversity in Wales. The Welsh Ministers must also take all reasonable steps to maintain and enhance the living organisms and habitats included in any list published under this section, and encourage others to take such steps.

1.3.8 Planning Policy Wales (Edition 10) was published in December 2018. Chapter 6 - Biodiversity and Ecological Networks - highlights the importance of biodiversity and explains the 'Biodiversity and Resilience of Ecosystems Duty' (the 'Section 6 Duty'), introduced in the Environment (Wales) Act 2016 (see above).

1.3.9 PPW states that in executing this Duty, planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity. In doing so planning authorities must also take account of and promote the resilience of ecosystems, including their diversity, connections, scale, condition and adaptability.

1.3.10 PPW advises that planning authorities must have regard to the relative significance of international, national and local designations in considering the weight to be attached to nature conservation interests.

1.3.11 In terms of maintaining and enhancing biodiversity, PPW states that planning authorities must follow a step-wise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for; enhancement must be secured wherever possible.

1.3.12 The first priority for planning authorities is to avoid damage to biodiversity and ecosystem functioning. Where there may be harmful environmental effects, planning authorities will need to be satisfied that any reasonable alternative sites that would result in less harm, no harm or gain have been fully considered.

1.3.13 Planning authorities should ensure that features and elements of biodiversity or green infrastructure value are retained on site, and enhanced or created wherever possible, by adopting best practice site design and green infrastructure

principles. The provision of up to date ecological survey information will assist in this process. Where necessary, planning authorities should seek to modify the development proposal through discussion with the applicant at the earliest possible stage. Biodiversity and green infrastructure modifications should draw on the issues and opportunities identified through the Green Infrastructure Assessment.

1.3.14 In some circumstances, it will be appropriate to attach planning conditions, obligations or advisory notes to a permission, to secure biodiversity outcomes. Planning authorities should take care to ensure that any conditions necessary to implement this policy are, relevant to planning, relevant to the development to be permitted, enforceable, precise, and reasonable in all other respects.

1.3.15 When all other options have been exhausted, and where modifications, alternative sites, conditions or obligations are not sufficient to secure biodiversity outcomes, offsite compensation for unavoidable damage must be sought. This should normally take the form of habitat creation, or the provision of long-term management arrangements to enhance existing habitats and deliver a net benefit for biodiversity. It should also be informed by a full ecological assessment before habitat creation or restoration starts.

1.3.16 The Green Infrastructure Assessment should be used to identify suitable locations for securing offsite compensation. Where possible, a landscape-scale approach, focusing on promoting wider ecosystem resilience, should help guide locations for compensation. This exercise will determine whether locations for habitat compensation should be placed close to the development site, or whether new habitat or additional management located further away from the site would best support biodiversity and ecosystem resilience at a wider scale.

1.3.17 Where compensation for specific species is being sought, the focus should be on maintaining or enhancing the population of the species within its natural range. This approach might also identify locations for providing species specific compensation further away from the site. Where they exist, Spatial Species Action Plans should be used to help identify suitable locations.

1.3.18 Any proposed compensation should take account of the Section 6 Duty (Biodiversity and Resilience of Ecosystems Duty), and the five key ecosystem resilience attributes that it outlines. It should also be accompanied by a long-term management plan of agreed and appropriate mitigation and compensation measures.

1.3.19 Finally, where the adverse effect on the environment clearly outweighs other material considerations, the development should be refused.

1.3.20 PPW advises that the presence of a species protected under European or UK legislation, or under Section 7 of the Environment (Wales) Act 2016 is a material consideration when a planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat and to ensure that the range and population of the species is sustained.

1.3.21 Technical Advice Note (TAN) 5: Nature Conservation and Planning (2009)

- TAN 5 provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. It provides advice to local planning authorities on the application of the law relating to planning and nature conservation and its impact within the land use planning system.

2 Methods and Approach

2.1 Field Survey

2.1.1 The survey approach and assessment followed best practice guidelines and was undertaken in cognisance of Wrexham Council's Local Planning Guidance note 32.

Extended Phase 1 Habitat Survey

2.1.2 All habitats present within the site boundary and immediately adjacent were surveyed on 19 July 2023 following the Phase 1 habitat survey methodology (JNCC 2010). The survey aimed to provide a record of habitats that are present and investigate further those that are likely to be ecologically important, with features of interest recorded as target notes.

2.1.3 The survey was 'extended' to include a general assessment for the presence or potential presence of protected species, noting any areas of suitable habitat and the location and type of any field signs recorded. Given the presence of one pond within 250 m of the site; this element of the survey primarily focused on great crested newts (GCN) were also key consideration owing to site's rural location. Bats were scoped out of the assessment as no buildings or trees are impacted while reptiles were considered unlikely to be affected due to the agriculture dominated landscape. Further information on survey approaches for target species/groups is provided below.

GCN

2.1.4 There is one pond within 250 m of the site, and this was subject to an eDNA survey on 30 June 2023 following the protocol given by Biggs et al 2014. Additional population survey data for this pond from 2022 was also made available by the applicant. This included two bottle trapping and torch surveys carried out by Marches Ecology on 6 and 19th April 2022.

2.1.5 Ponds 250 – 500 m from the site were discounted from survey owing to the relatively small scale of the development proposals meaning impacts on further afield habitats are highly unlikely. In addition, consideration was also given to the quality of terrestrial habitats within the site for GCN.

Badger

2.1.6 The survey was undertaken following the standardised methodology given by Harris *et al*. 1989. This included a search for badger setts, badger paths (including footprints), latrine sites (or dung pits), trapped hair on fences and evidence of foraging.

2.2 Personnel

2.2.1 The PEA was undertaken by Jon Guarnaccio MCIEEM. Jon has 20 years experience as an ecological consultant and holds survey licenses for numerous protected species including GCN. The eDNA testing was undertaken by Richard Roe of Kingdom Ecology Ltd.

2.3 Survey Constraints

2.3.1 The PEA was undertaken at an appropriate time of year following best practice guidelines. It should also be noted that the behaviour of animals can be unpredictable and may not conform to standard patterns recorded in scientific literature. Therefore, this report cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats, or that they will not occur in locations or habitats that appear unsuitable.

2.4 Ecological Evaluation

2.4.1 One of the key elements of an ecological assessment is to determine which ecological features (habitats, species, ecosystems and their functions/processes) are important and should be subject to further detailed assessment. It is unnecessary to carry out detailed assessment of features that are sufficiently widespread, un-threatened and resilient to development effects, such that there is no risk to their viability.

2.4.2 Ecological features can be important for a wide variety of reasons. Importance may relate, for example, to the quality or extent of designated sites or habitats, to habitat/species rarity, to the extent to which they are threatened throughout their range, to their rate of decline and/or the legal protection they receive. The importance of an ecological feature should be considered within a defined geographical context. In accordance with CIEEM 2019 guidelines, the following frame of reference has been used:

- International and European
- National (Wales)
- Regional (North Wales)
- Metropolitan/County (Wrexham)
- Local (Threapwood)

2.4.3 Taking into account the CIEEM guidance, features of less than Local importance are generally considered unlikely to trigger a mitigation or policy response in EcIA terms and are therefore not subject to ecological assessment within this report.

3 Results

3.1 Field Survey

Habitats

3.1.1 Figure 1 shows the results of the Phase 1 habitat survey with further information on key habitat types mentioned below. In summary, the site mainly comprises a large field of poor semi-improved grassland bounded by hedgerows and an existing site access track. The land slopes gently to the west, the far end of the site being subject to regular winter flooding. A pond is present within the southeast corner of the site, this being partially shaded by dense hawthorn and willow scrub.

Poor semi-improved grassland

3.1.2 Grassland represents the dominant habitat within and surrounding the application site. The grassland is relatively species poor comprising no more than 6 species per m² on average. Grass species present include **abundant** perennial rye with **frequent** smooth meadow grass and Timothy, **occasional** common bent and meadow foxtail and **rare** Yorkshire fog. Herbs include: **frequent** white clover, common mouse ear, **occasional** dandelion, spear thistle, creeping buttercup and meadow buttercup, **rare** meadow vetchling, red clover, creeping thistle, selfheal, broadleaved dock, common sorrel, common bird's foot-trefoil and cuckoo flower. A new access road has recently been created through the centre of the field this being characterised by rubble, bare earth and waste ground plant species such as fat hen, sow thistle, pineapple weed, greater plantain, willowherb sp., groundsel, goosefoot and pineapple weed.

Scrub

3.1.3 Dense hawthorn and grey willow scrub has formed around the south and east sides of pond P1 with bramble also present on the bank top.

Hedgerows

3.1.4 Hedgerows exist on all sides of the site. These are similar in appearance and composition being approx. 2-3 m tall x 2-3 m wide and subject to annual management. Woody species include hawthorn, blackthorn, elder, elm sp., field maple, dog rose and bramble. The ground flora comprises false oat grass, common hogweed, cleavers, ivy and broad-leaved dock. None of the hedges would qualify as important under the Hedgerow Regulations as on average they don't support sufficient woody species and lack notable plant species within the ground layer. Sections of hedge on the west and east site boundaries have been removed to make way for a new site access road and newly planted yew hedges are present where the new road meets Frog Lane.

Ditch

3.1.5 A narrow ditch exists on the western edge of the application site, this flowing parallel with a hedgerow. Aquatic plant species present include brooklime,

floating sweet-grass, amphibious bistort and marsh yellow cress with reed canary grass and meadow sweet present around the edges.

Standing water

3.1.6 P1 is located on the southeast corner of the site. This is partly shaded by dense grey willow and hawthorn scrub in the eastern third of the pond while the remainder is unshaded. A variety of aquatic species are present including: branched bur-reed, common spike-rush, water-starwort, duckweed, lesser water-parsnip, fool's water-cress, floating sweet grass and water plantain.

Protected Species

GCN

3.1.7 Pond P1 tested positive for GCN eDNA with a score of 10/12 replicates. Additionally, a peak count of six GCN was recorded during trapping/torching surveys carried out in April 2022. Tall grassland, hedgerow bases and crushed rubble habitats within the new access road provide valuable terrestrial habitat for GCN as they offer foraging, resting and commuting opportunities.

Breeding birds

3.1.8 Scrub surrounding P1 and hedgerows provide optimal nesting habitat for breeding birds.

4 Discussion and Recommendations

4.1 Evaluation

4.1.1 Table 1 below summarises the value of ecological features within the site in a geographical context. Features have either been scoped in or out of the assessment with those scoped in considered to be of sufficient importance to warrant them being carried through to the impact assessment stage.

Table 1 Ecological Feature Evaluation

Ecological feature	Geographic Level of Value	Scoped in/out	Comments
Habitats	Local	In	The site largely comprises poor semi-improved grassland and bare ground: habitats of limited ecological value that do not meet County Wildlife Site selection criteria and therefore do not warrant further attention within this report. However, hedgerows and ponds are Priority Habitats in Wales (although the hedges do not qualify as important under the Hedge Regs 1997).
GCN	Local	In	Pond P1 supports a small breeding population of GCN and given the high suitability of terrestrial habitats, it is almost certain that GCN are present within the site. GCN receive full legal protection and listed as a species of Principal Importance in Wales.
Breeding Birds	Local	In	Hedgerows are likely to be used for breeding and foraging while barn owls are likely to forage across grassland habitats.
Badgers	-	Out	No evidence of badgers was recorded.

4.2 Assessment

4.2.1 Table 2 below details the impacts associated with the planning proposals. In accordance with CIEEM guidelines, impacts have been characterised (where appropriate) in terms of their extent, magnitude, duration, frequency, timing and reversibility.

Table 2 Assessment of Potential Impacts

Ecological feature	Potential Effect	Possible causes	Details of ecological effect	Significance
Habitats	Habitat loss and degradation	Creation of new dwelling, access road and landscaping of site	Approx 15 m of hedgerow habitat has been removed as part of new road construction. Proposals will also result in the permanent loss of approx. 0.5 ha of grassland habitat. Given minimal extent of hedgerow habitat loss and low botanical value of grassland, impacts would not be significant beyond the site level.	Not significant beyond site level
GCN	Mortality and Disturbance	Removal of grassland habitat and creation of road (i.e. in-filling of existing	GCN could be disturbed and/or possibly injured or killed during grassland clearance and access road formation. This would result in an offence that protects GCN and their	Adverse significant at local level

Ecological feature	Potential Effect	Possible causes	Details of ecological effect	Significance
		hardcore base).	resting places.	
		Creation of suitable habitat during construction phase	During the construction phase, parts of the site may temporally become more attractive to GCN. For example, rubble piles and stockpiles of materials could provide sheltering places for amphibians. Thus, during this period, there is a risk that GCN could enter these newly created features and be harmed during their removal.	Adverse significant at local level
	Habitat loss	Removal of grassland habitat and creation of road (i.e. in-filling of existing hardcore base).	Permanent loss of approx. 0.5 ha of high value terrestrial habitat some of this being core habitat within 50 m of the pond. This represents a small fraction of the total habitat available to GCN within 250 m of P1 but given this is core habitat close to the pond, impacts are greater.	Adverse significant at local level
Breeding birds	Mortality and Disturbance	Bird nests could have been lost during hedgerow clearance.	Birds could have been disturbed and/or possibly injured or killed if hedge clearance took place during the nesting season.	Adverse significant at local level
	Habitat loss	Hedge removal	Permanent loss of nesting habitat although only relatively short amounts of hedgerow habitat have been lost.	Not significant beyond site level

4.3 Mitigation and Recommendations

4.3.1 Under CIEEM 2019 Guidelines, a sequential process should be adopted to avoid, mitigate and compensate negative ecological impacts and effects; this is often referred to as the 'mitigation hierarchy' and are the key principles following the impact assessment stage. These measures are detailed in Table 3 below. Generic best practice guidance and procedures should also be implemented as part of the development. For instance, new fencing should include 130 mm gaps at the base to allow movement of hedgehogs through the site while new lighting should be kept to an absolute minimum with lighting designed to minimise light spill. Additionally, any steep sided excavations should have scaffold boards positioned within them overnight to allow any trapped animals to escape. The ecological value of the development should be enhanced in accordance with national and local planning policy These measures are detailed below along with information on their creation and management.

Wildflower Grassland

4.3.2 Retained poor semi-improved grassland within the application site (excluding areas around ponds) will be ecologically enhanced through increasing botanical diversity and through implementation of an appropriate management regime. This will be achieved by sowing a native wildflower seed mix (e.g. Emorsgate's general purpose meadow mix) in the spring or autumn at a rate of 1g/m² with additional yellow rattle sowing at 4g/m² to reduce the vigour of grasses which are currently a large component of the sward. Establishment gaps would be created

with a harrow beforehand to maximise the success rate of new seed. The grassland will require cutting to 50 mm above ground level once a year in August with all arisings removed and preferably some low density aftermath grazing by cattle during the autumn months.

Hedges

4.3.3 Approximately 500 m of new native hedgerow will be planted along the proposed new site access road. Species will include hawthorn, blackthorn, holly, hazel, elder, dog rose and guelder rose. In the first few years of their creation, hedges will require little in the way of management but once stablished will be allowed to grow thick and bushy with occasional light cuts in early winter to maintain hedges approx. 3 m tall x 2 m wide.

Scattered trees

4.3.4 A number of native trees will be planted including oak, field maple and silver birch. Additionally, a small orchard area comprising ten fruit trees of several varieties will be planted within the site.

Ponds

4.3.5 Two new ponds will be created in the south eastern part of the site near the existing pond, these being dug in autumn and allowed to fill naturally with water during the winter. Although primarily of benefit to GCN populations, the ponds will also attract other species of amphibians as well as birds and insects. Each pond will have a surface area of approx. 200 m² with a range of depths. This will include shallow margins (<100 mm deep) extending 1 m into the ponds which will seasonally dry up resulting in a wider variety of habitat niches within the ponds. The ponds will gently slope towards their centre to a maximum depth of approximately 1.5 m, therefore ensuring the ponds hold water throughout the year.

4.3.6 Marginal and aquatic plants should be planted to ensure that vegetative cover is established relatively quickly and a source of food is available for invertebrates and the animals that feed on them. Only native species of local origin should be planted and at the correct depths and spacing to allow growth and spread. As a rough guide, two-three plants should be planted per linear/square metre.

Table 3 Mitigation Measures

Ecological feature	Measures Proposed	Mechanism to secure delivery	Residual Impact
Habitats	**Compensate** for loss of hedgerows	Planting of 500 m of new native hedgerow. These will be double staggered and consist of hazel, holly, hawthorn, blackthorn, elder, dog rose and guelder rose.	Slight positive at Local level
GCN	**Avoid** death/injury of GCN during site clearance activities and throughout construction phase. **Compensate** for loss of suitable GCN habitat	Undertake all works under licence from NRW. Temporary amphibian fencing (TAF) will be installed (under the supervision of the licensed ecologist/their accredited agent) around the perimeter of the existing road and proposed dwelling house/garden area along with where the new ponds will be created. The interior of the site will also be compartmentalised with TAF and	Slight positive at Local level

Ecological feature	Measures Proposed	Mechanism to secure delivery	Residual Impact
		pitfall traps installed at 10 m intervals (minimum trap density of 80 traps/ha) along the inside of the fence line. The site will then be trapped out for a period of at least 30 days with captured GCN and other amphibians being relocated to surrounding tall grassland and hedgerow habitat (within the same ownership). Trapping will only take place during suitable conditions in the active season (typically March to November) when night air temperatures are above 5°C and rain has recently occurred. The landscape scheme (see above) has been designed to provide suitable terrestrial and aquatic habitat for GCN. Additionally, six rubble pile hibernacula will be created adjacent to P1 and the two new ponds as per the specification given in the GCN Mitigation Guidelines (Foster 2001). Grassland around ponds will be allowed to grow unmanaged to create better quality terrestrial habitat for GCN.	
Breeding Birds	**Compensate** for loss of nesting habitat through hedgerow creation and installation of integral bird nesting features within new dwelling.	Six integral bird nesting units should be incorporated into the outer walls of the new dwelling. These should be installed at a height of at least 4 m above ground level and cater for swifts, sparrows and crevice roosting species such as pied wagtail and blue tit. Such features should be installed on east and north elevations.	Neutral

5 References

Biggs J *et al* (2014). *Analytical and methodological development for improved surveillance of the Great Crested Newt.* Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA. Freshwater Habitats Trust, Oxford.

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Plate 1 Looking west across site



Plate 2 Looking east across site



Plate 3 Typical boundary hedge



Plate 4 P1



Plate 5 Rubble provides optimal GCN habitat



Plate 6 Ditch on western site boundary

Wern y Tow

Glandeg Farm

SI

SI

SI

I

SI

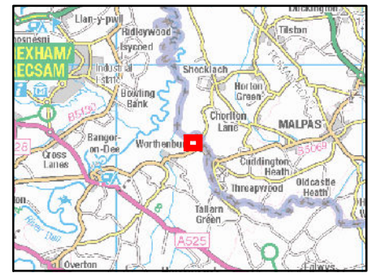
SI

P1

FROG LANE

N

0 10 20 40 60 80 100 Metres



Legend

Phase 1 Habitats

- Scrub - dense/continuous
- I — Improved grassland
- SI — Poor semi-improved grassland
- Tall herb and fern - ruderal
- Standing water
- Building
- Bare ground/hardcore
- Ditch
- Intact hedge - species-poor
- Yew hedge
- Broadleaved tree

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Phase 1 Habitats Map

Gwern-y-To Farm

Scale	Drawing No.
1:500 @ A3	Figure 1

Drawn By	Originator	Date
CC	JG	AUG 2023

Ref.	Revision
	A

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