

Life & Wild

Exploring the Great Outdoors

GCN ECOLOGICAL IMPACT ASSESSMENT:

Hanmer Arms

Hanmer Village Road

Hanmer

Wrexham

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1 BACKGROUND

1.1 PROPOSED DEVELOPMENT

The proposed development includes the construction of new build holiday lodges on an area of land within the grounds of the Hanmer Arms, Hanmer Village Road, Hanmer, Wrexham.

1.2 AIMS AND OBJECTIVES

The survey was conducted to investigate the status of the site in respect to great crested newts (GCN). It was to:

- establish the presence / absence of GCN within 250m of the development area
- gather information to make an informed assessment on the potential impacts of the proposed development if GCN are present on site

1.3 PERSONNEL

Bobby John Smith is a professional consultant ecologist with a BSc Degree in Ecology and Conservation Biology. He has 8 years' experience surveying UK protected species and is a member of the South Lancashire Bat Group. He holds Natural England licenses for bats and great crested newts.

2 METHODOLOGY

2.1 DESK STUDY

An examination and initial assessment was made of the site and surrounding area using the OS map (1:25,000 scale) and recent aerial photographs (Google Earth) and reference to the M.A.G.I.C web site.

Potential commuting lines and connectivity for newts between ponds within a 250m radius of the site were identified from OS maps and aerial photographs provided by Google Earth.

2.2 FIELD SURVEY

Great Crested Newt

Pond Inspection

Available ponds were assessed as far as possible for suitability as habitat for great crested newts on the following criteria:

- size
- permanence of pond
- water quality
- percentage shade
- presence of wildfowl
- presence of fish
- pond density
- suitability and availability of terrestrial habitat abundance and type of emergent / submerged vegetation

The surrounding habitat was examined for suitability and potential for use by great crested newts. Where appropriate, distance and connectivity to the nearest ponds and to other ponds outside the 250m radius were assessed by maps and aerial photographs during the desk survey. Potential dispersal routes were identified. The area was inspected for potential usage by great crested newts, around and inside any structures on the site. The immediate areas around the proposed development were assessed for their suitability as GCN habitat and potential use of the whole site for commuting, foraging and land refuges.

Presence/Absence Surveys

The following methodology was applied:

- Presence/absence surveys were conducted which included the following survey methods: bottle trapping; torch and egg searches; netting surveys; and; terrestrial based refuge searches.
- Weather conditions were noted for each site visit

Terrestrial Surveys (4)

Carpet tiles (30-60) were placed along the boundary hedgerows of the proposed development area and along the hedgerows. They were left in situ for the duration of the survey (4 weeks). Each week the carpet tiles were checked for presence/absence of GCN.

Torch & Egg Searches (4)

During the terrestrial survey torch light was used to scan the field and hedgerow as the carpet tiles were checked for GCN. Submerged and edge vegetation was checked for GCN eggs during each bottle trapping session.

Netting & Bottle Trapping Surveys (4)

Each of the survey ponds (4) had bottle traps placed around the edge of the water body. They were set in the evening and collected the following morning which included a netting survey of the pond.

2.3 CONSTRAINTS OF SURVEY

No constraints were identified.

3 RESULTS

3.1 DESK STUDY

A desk study using OS maps revealed six ponds within 1km of the site all of which are within any insurmountable boundaries, which includes two ponds located within 250m of the proposed development area. Previous surveys of the site reveal two other waterbodies noted in the proposed development field which do not show up on the OS map.

3.2 FIELD SURVEY

Great Crested Newt

Terrestrial land search, torch and egg search and bottle trapping surveys were used to assess the potential of the site to support great crested newts.

Waterbody

Description

WB1- Located in the south west corner of the development field. Connectivity to WB 2&3 is viable although the field is grazed by sheep and the only connective hedgerow habitat is sparse, which runs along the west and north perimeter of the development field. The level of the water noted after a prolonged period of heavy rain was very low which indicated that the pond is likely to dry annually (<1') and there was no aquatic vegetation present, only terrestrial submerged common grasses. This pond has limited breeding potential for GCN. This waterbody was noted completely dry when the site was visited on 26th May 2018. (Fig 1).

WB2- Located in the north west corner of the development field. The water level was also very low (<1') and was made up of rain water which had drained from the surrounding field. No submerged aquatic vegetation was present, only terrestrial submerged common grasses. This pond has no breeding potential for GCN. This waterbody was noted completely dry when the site was visited on 26th May 2018 (Fig 2).

WB3- Located along the east corner of the proposed development area (Fig 3). This water body is a low level (<0.5') running stream which heads to the north under the main road (A539). This pond has no breeding potential for GCN.

WB4- Located in the north east corner of an agricultural field, the pond is isolated when the crop surrounding the waterbody is harvested (Fig 4). There is some terrestrial vegetation around the perimeter, however the ground cover is poor due to majority of the flora consisting of woody shrubs on bare compact ground. There is a hedgerow running along the north side which traces the busy A539, which may present some connectivity and create foraging potential, however the roads and agricultural fields isolate and reduce the habitat for commuting GCN.



Fig 1. WB1 noted completely dry 26/05/18



Fig 2. WB2 noted completely dry 26/05/18



Fig 3. Running water from stream WB3



Fig 4. Large waterbody in agricultural field WB4

Connectivity

The connectivity between **WB1-3** is viable, however connectivity from these ponds to **WB4** is restricted due to the busy roads found to the north and east.

Habitat Suitability

The scores revealed that **WB4** has average habitat suitability for great crested newts. **WB1-3** have below average suitability. (Fig 5).

Appendix 1: HSI scores for ponds

Pond ref	Pond 1	Pond 2	Pond 3	Pond 4
SI1 - Location	1	1	1	1
SI2 - Pond area	0.05	0.05	0.05	0.8
SI3 - Pond drying	0.1	0.1	0.9	0.9
SI4 - Water quality	0.33	0.33	0.33	0.33
SI4 - Shade	1	1	1	1
SI6 - Fowl	1	1	1	0.67
SI7 - Fish	1	1	1	0.67
SI8 - Ponds	0.8	0.8	0.8	0.8
SI9 - Terr'l habitat	0.67	0.67	0.67	0.67
SI10 - Macrophytes	0.3	0.3	0.5	0.35
HSI	0.44	0.44	0.58	0.68
HSI Score Pond Suitability				
< 0.5 Poor				
0.5 – 0.59 Below average				
0.6 – 0.69 Average				
0.7 – 0.79 Good				
> 0.8 Excellent				

Fig 5. Habitat Suitability Index (HSI) score for the ponds surveyed

Presence/Absence Survey

The presence/absence surveys were conducted on the dates shown in **Fig 7**. The following methods were used:

- Four sets of: bottle trapping; torch and egg searches; netting surveys; and; terrestrial based refuge searches; were carried out over the period of 25th April to 20th May 2018
- Weather conditions were noted for each site visit

Date	Techniques	Conditions	Results (Pond 1-6)
25/04/18- 26/04/18	LTS, RS, PT, N, ES, BT (30)	Dry Evening (13*), Dry Morning- (10*) 75%-83% Humidity	No catch (All)
02/05/18- 03/05/18	LTS, PT, N, ES, RS, BT (30)	Dry Evening (10), Dry Morning (11*) 80%-83% Humidity	No catch (All)
10/05/18- 11/05/18	LTS, RS, PT, BT (30), ES, RS	Wet Evening (10*), Dry Morning 9*) 92%- 71% Humidity	No catch (All)
19/05/18- 20/05/18	LTS, PT, BT (30), ES, RS	Dry Evening (15), Dry Morning (9*) 79%- 82%	No catch (All)

Fig 6. Results from GCN presence/absence surveys 2018

Key to techniques:

- LTS: Land torch search
 RS: Refuge search, lifting mats and looking under existing materials on site
 PT: Pond torch survey
 ES: Egg search
 N: Netting
 BT (10-30): Bottle trapping, 10-30 bottles traps set (dependent on pond size) in each survey pond previous night and then lifted.

Terrestrial Land Search (4)

No GCN were found seeking refuge under any of the carpet tiles along the perimeter hedgerows during the survey period of 25th April-20th May 2018.

Torch & Egg Searches (4)

No GCN were noted commuting across the site or along the hedgerows during the survey period.
No eggs were found on any of the submerged or edge vegetation in any of the survey ponds during the survey.

Bottle Trapping Surveys (4)

No GCN were caught in the bottle trapping sessions during the survey period.

4 IMPLICATIONS AND RECOMMENDATIONS

4.1 GREAT CRESTED NEWT

Site Evaluation

GCN presence/absence surveys were conducted in the ponds following the guidelines set by Natural England. This included a terrestrial land search, torch and egg search and bottle trapping over a four-week period during April- May. Weather conditions were suitable for GCN activity during the survey work.

No GCN activity was noted in any of the ponds or surrounding terrestrial habitat.

Impacts

Potential impact due to disturbance and potential injury during operations is to be minimised by employing reasonable avoidance measures (RAMS) during all work undertaken during the development process.

Risk Evaluation

This risk evaluation (**Table 1**) assumes there may be potential for minor disturbance of GCN due to possible presence on the land areas near where the development is to take place. The Natural England risk evaluation advice states methods by which impacts may be reduced and/or removed by careful design of the development, work practices and timing of operations.

Table 1: Risk evaluation without mitigation (NE, 2000)

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	Minor disturbance of newts	0.5
Maximum:		0.5
Rapid risk assessment	AMBER: OFFENCE LIKELY	

result:	
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It is concluded that the potential for short-term impacts may be reduced to insignificant by timing of land clearance operations and the use of reasonable avoidance measures during the development work. This will remove potential for minor disturbance of GCN and the recalculation (**Table 2**) indicates offence highly unlikely.

Table 2: Risk evaluation with mitigation

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
Maximum:		0
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

Impacts

Potential impact assessment: short-term impacts

There is a very small potential impact for disturbance, injury or death through the possibility of amphibians crossing the plot. This is because there are ponds within 250m of the proposed site. This potential is assumed as there is no evidence at present of GCN being present in any of the water bodies surveyed. The impact calculation (above) has assumed presence in the area to ensure that is accounted for in the development scheme. These impacts may be addressed by reasonable avoidance (RAMS) to ensure that there is no disturbance to great crested newts.

Potential impact assessment: long-term and post-development impacts

Fragmentation and isolation

There are no hedges to be destroyed or other potentially connective habitat as the bulk of the proposed development is on grazed amenity grassland.

Habitat loss

There is no impact identified in respect of habitat loss. The loss of grazed amenity grassland is considered to be insignificant and unlikely to result in impacts on the species.

Habitat modification

The proposed development will keep the habitat similar in type and area to that already existing. Therefore, habitat modification is insignificant.

Reasonable Avoidance Measures (RAMs)

Reasonable avoidance measures (RAMs) should be implemented throughout the development to minimise the potential for any harm to amphibians during the development. The storage of materials on the site

(for example) could provide commuting amphibians with potential places for shelter/refuge. The following RAMs should therefore be implemented:

- Ground clearance of the site and any drainage and services installation should be completed as far as possible between March and August, when most GCN are in ponds to minimize any risk of finding undetected amphibians. Open land clearance may also be done after November, once the weather has gone cold and GCN are entering hibernation.
- All vegetation in the development area excluding the hedgerow will be kept short cut especially the grazed grassland where the new holiday cottages are to be built.
- No materials from the building work are to be left in open piles in the development area. These would have potential as artificial refuge site for amphibians and subsequent removal may result in injury or death if animals are present and undetected.
- All piles of materials, especially the large pile of vegetation identified during the survey (if still present) on the site must be removed with care to avoid potential injury or death to any newts present. Any areas such as stone and brick piles, wood piles and clearance of materials presently on the ground around the site must be hand-cleared, by careful lifting and examining underneath each item removed to avoid crushing any animals that may be beneath
- All building materials (bricks, tiles, concrete blocks etc) should be delivered and stored off the ground on pallets or timber baulks, preferably on the hard-standing areas. If this is not possible, then the area beneath must be checked and shortcut before depositing loads
- All loose materials should be delivered to and stored on site in bulk bags, and not be loose tipped on site
- Excavations should, wherever possible, be back-filled at the end of each working day. Where trenches are excavated for services, the trench should be excavated in the morning, the services laid and the trenches back-filled in the afternoon. Where this is not possible, the trenches should be covered over with sheet plywood and the edges sealed with topsoil to prevent amphibians falling into the trenches

All contractors working on site must be made aware of the small potential for amphibians to be present and be made fully conversant with the legislation for GCN. All contractors must be made familiar with the RAMs and act in accordance with them

If any great crested newts will be found during work, are discovered then all work must stop and a qualified consultant, licensed for great crested newts, must be contacted and their advice followed. Failure to do so may result in an offence under the legislation detailed in Appendix 2.

4.2 HABITAT

The proposed development offers the chance to improve habitat for wildlife frequenting the site. Therefore, it is recommended that additional flora is incorporated into the new development plans to maintain foraging potential and further attract wildlife (**Appendix 4**).

4.3 OTHER SPECIES

There are no mitigation proposals in respect of any other protected species.

5 CONCLUSIONS

It is assessed that providing RAMs are applied then a European Protected Species Licence (EPSL) in respect of great crested newt species will not be required.

The conclusions and recommendations in this report in respect of protected species are based upon results from surveys in April/May 2018. This data will only be of use until March 2020 after which further survey to establish the position and possible changes in status will be necessary to ensure all activities are informed and guided by recent data on site status.

6 REFERENCES

- English Nature (2001) *Great Crested Newt Mitigation Guidelines* Version August 2001
- Gent, T. & Gibson, S. (2003) *Herpetofauna Workers' Manual* Revised reprint 2003. JNCC
- Langton, T.E.S., Beckett, C.L. and Foster, J.P. (2001) *Great Crested Newt Conservation Handbook*

APPENDIX 1: ECOLOGY OF SPECIES

Great Crested Newt

Great crested newts are amphibians requiring suitable water bodies for breeding and terrestrial habitat for foraging and hibernation. They return to their breeding ponds between March and May, leaving them after breeding, usually in June or July but dependant on weather conditions and seasonal changes. Females lay their eggs on aquatic vegetation, wrapping each single egg in a fold in the vegetation. After hatching the young newts remain in the water until the late summer (August to October) before leaving for the winter. Occasionally the larvae will overwinter in the pond.

Great crested newts hibernate during the winter amongst piles of rubble, underground (in mammal tunnels) or amongst leaf litter. During warmer weather, when temperatures are generally above 4-5 degrees overnight and particularly when conditions are damp, GCN will be active and will commute along protective routes such as hedges, ditches and other features that offer cover and areas of refuge. They may also cross open areas of short grass and also areas of bare ground, which offer good foraging for invertebrates. Certain features such as railways, multi-lane roads and canals will not be crossed and are considered to be barriers to commuting and dispersal.

APPENDIX 2: LEGISLATION & POLICY GUIDANCE

Great Crested Newt

Great crested newts, *Triturus cristatus*, are offered special protection under the following legislation:

The Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9. This Act transposes into UK law the **Convention on the Conservation of European Wildlife and Natural Habitats** (commonly referred to as the “Bern Convention”. The WCA was recently amended by the **Countryside and Rights of Way [CROW] Act 2000**. This makes it an offence to:

- intentionally kill, injure or take a great-crested newt [Section 9(1)]
- possess or control any live or dead specimens or anything derived from a great-crested newt [Section 9(2)]
- intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a great-crested newt [Section 9(4)(a)]
- intentionally or recklessly disturb a great-crested newt while it is occupying a place or structure which it uses for that purpose [Section 9(4)(b)].

“The Conservation of Habitats and Species Regulations 2010 (as amended)” (The Habitats Directive) transposes into UK law **Council Directive 92/43/EEC** of 21st May 1992 on the **Conservation of Natural Habitats of Wild Fauna and Flora** (referred to as the Habitats [and Species] Directive). The great-crested newt is listed on Annex II and Annex IV of the Directive. Inclusion in Annex II serves to underline the animal's conservation significance; inclusion in Annex IV (European Protected Species) means that member states are required to put into place a system of strict protection as outlined in Article 12. This is done through inclusion in Schedule 2 of the Regulations. Regulation 41 makes it an offence to:

- deliberately capture or kill a great crested newt [Regulation 41 (1)(a)]
- deliberately disturb a great crested newt [Regulation 41(1)(b)]
- deliberately take or destroy the eggs of a great crested newt [Regulation 41(1)(c)]
- deliberately damage or destroy a breeding site or resting place of a great crested newt [Regulation 41(1)(d)].

This legislation applies to all life stages of great crested newts.

Amendments

The Wildlife & Countryside Act 1981 has several subsequent amendments the most important being the Countryside and Rights of Way Act 2000 (CROW) which under Schedule 12 of the Act strengthens the legal protection for threatened species. It also makes certain offences 'arrestable' and importantly and significantly creates a new offence of reckless disturbance. It also confers greater powers to police and wildlife inspectors for entering premises and obtaining wildlife tissue samples for DNA analysis, and also enables heavier penalties on conviction of wildlife offences.

Schedule 12 amendment state: ‘...In section 1(5) of the 1981 Act (offence of intentional disturbance of wild birds) after “intentionally” there is inserted “or recklessly”.

Exceptions For Licensing

There are several exceptions to the provisions listed above under Regulation 44(2)(e). The Wildlife Licensing Unit of Natural England issues licences for a number of purposes, including “*preserving public health or 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*”. Licences permit unlawful activities under and in accordance with the terms of a licence granted by the appropriate authority.

Regulations 41 does not apply to anything done (under appropriate licence) for any of the following purposes:

- scientific or educational purposes
- ringing or marking, or examining any ring or mark on, wild animals
- conserving wild animals or wild plants or introducing them to particular areas
- protecting any zoological or botanical collection
- 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
- preventing the spread of disease
- preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or any other form of property or to fisheries.

The appropriate authority shall not grant a licence under this regulation unless they are satisfied-

- (a) that there is no satisfactory alternative, and
- (b) 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.

APPENDIX 3: LOCATION OF WATERBODY(S) NEAR PROPOSED DEVELOPMENT AREA



Plate 1. Location of waterbodies within 1km- OS Map

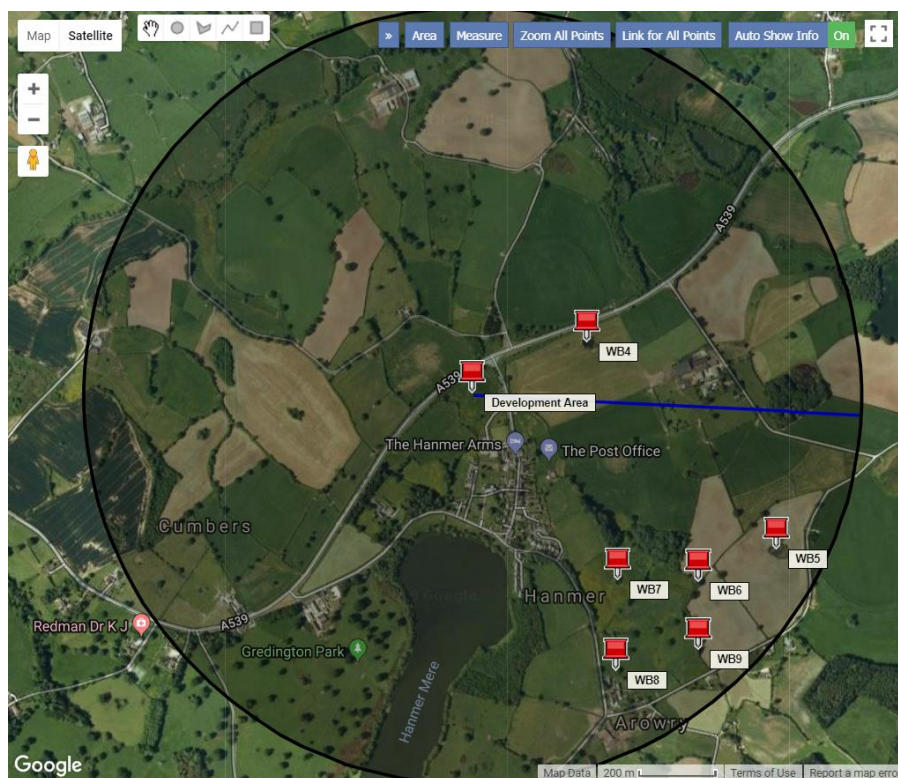


Plate 2. Location of Waterbodies within 1km- Satellite Image

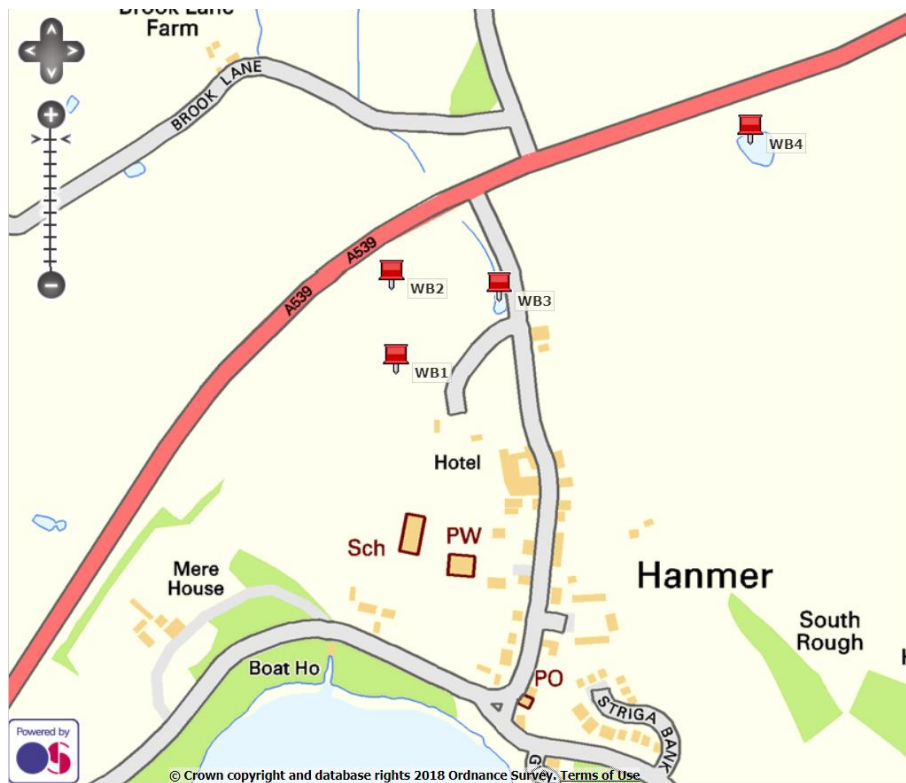


Plate 3. Location of waterbodies within 250m- OS map

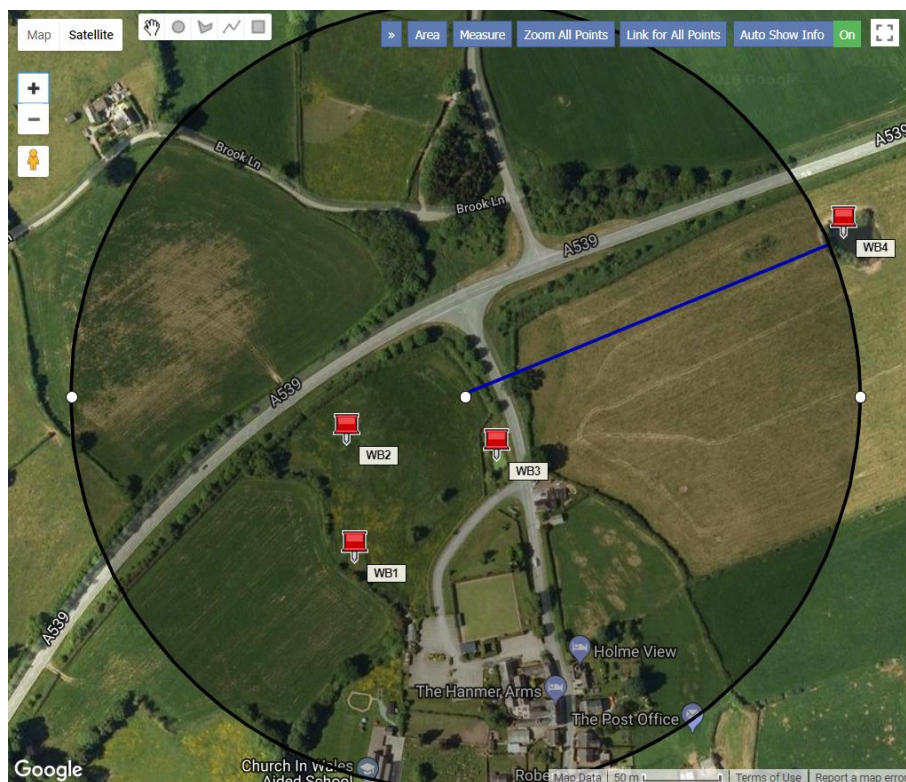


Plate 4. Location of waterbodies within 250m- Satellite Image

APPENDIX 4: HABITAT ENHANCEMENTS: PLANTING FOR WILDLIFE

Planting to enhance a site should aim to provide a habitat rich in insects. The following are examples of plant species, which can be used where appropriate, to enhance a landscape for wildlife.

Trees and Shrubs (of local provenance where possible)

Oak	<i>Quercus robur</i>
Ash	<i>Fraxinus excelsior</i>
Silver Birch	<i>Betula pendula</i>
Field Maple	<i>Acer campestre</i>
Hawthorn	<i>Crataegus monogyna</i>
Alder	<i>Alnus glutinosa</i>
Goat Willow	<i>Salix caprea</i>
Guelder Rose	<i>Viburnum opulus</i>
Hazel	<i>Coryllus avellana</i>
Blackthorn	<i>Prunus spinosa</i>
Elder	<i>Sambucus nigra</i>

Night-scented flowers

As for example, bats usually feed at dusk and dawn it is advantageous to use night-scented flowers which will attract moths and other night-flying insects.

Nottingham Catchfly	<i>Silene nutans</i>
Night -flowering Catchfly	<i>S. noctiflora</i>
Bladder Campion	<i>S. vulgaris</i>
Night-scented Stock	<i>Matthiola bicornis</i>
Dame's-violet	<i>Hesperis matronalis</i>
Common Evening-primrose	<i>Oenothera biennis</i>
Soapwort	<i>Saponaria officinalis</i>

Scented herbs

Chives	<i>Allium schoenoprasum</i>
Sage	<i>Salvia officinalis</i>
Marjoram	<i>Origanum vulgare</i>
Borage	<i>Borago officinalis</i>
Mint	<i>Mentha sp.</i>

Climbers

Honeysuckle (native)	<i>L. periclymenum</i>
Traveller's-joys	<i>Clematis vitalba</i>
Dog-rose	<i>Rosa canina</i>
Sweet-briar	<i>R. rubiginosa</i>
Field-rose	<i>R. arvensis</i>
Ivy	<i>Hedera helix</i>
Bramble	<i>Rubus fruticosos</i> agg.

Where reseeding is to take place the choice of a 'conservation mix' of grass seed would be preferential. The management of grassland areas as hay meadows, without use of herbicides/fertilisers and allowing the grass to go to seed prior to cutting is beneficial allowing larval stages of the insects to develop.

Source:

Bats in the garden by Shirley Thompson, 1989. School Garden Company. Spalding, Lincolnshire
Bat Conservation Trust leaflet 'Garden for Bats':