

Ecological Impact Assessment of land at Tresaith

Plas Bennion Road
Ruabon
Wrexham
LL14 1TP

(SJ28696.44251)

By Churton Ecology
(Mr. R.G. Thorne BA [Hons] MRSB and Dr A.K. Thorne MCIEEM | Contact 01743718270)
Commissioned by Craig Paddock
June 2022

CONTENTS

	Page
Summary	2
1. Introduction	3
1.1 Background and site description	3
1.2 Proposed works	3
2. Methodology	4
2.1 Desk study	4
2.2 Habitat survey	4
2.3 Protected species survey	4
2.3.1 Bats	4
2.3.2 Great Crested Newt	4
2.3.3 Badger	5
2.3.4 Breeding birds	5
2.3.5 Other protected and priority species	5
3. Results and evaluation	5
3.1 Designated sites	5
3.2 Field survey	6
3.2.1 Habitats on the site	6
3.2.2 Habitats in the site surrounds	6
3.3 Protected species survey	7
3.3.1 Bats	7
3.3.2 Great Crested Newt	7
3.3.3 Badger	10
3.3.4 Birds	10
3.3.5 Other protected and priority species	10
4. Impact assessment	11
4.1 General	11
4.2 Site habitats	11
4.3 Protected species	11
4.3.1 Bats	11
4.3.2 Breeding birds	12
4.4 Survey constraints	12
4.5 Protected species legislation	12
4.6 Personnel	13
5. Proposed avoidance measures, mitigation and enhancement	13
5.1 Avoidance measures and mitigation	13
5.1.1 Breeding birds	13
5.2 Enhancement recommendations	14
5.2.1 Habitats	14
5.2.2 Species	15
6. References	16

SUMMARY

Background

Churton Ecology was commissioned to carry out an Ecological Impact Assessment of land at Tresaith, Plas Bennion Road, Ruabon, Wrexham LL14 1TP.

The site comprises grazed improved grassland. The proposal is for the construction of a manege.

Method of study

A desktop search and general protected species walkover of the site and surrounds aimed to establish the presence or absence of Great Crested Newts, Badger, breeding birds and other protected species with potential to be negatively affected by the development proposal. All survey activities were carried out by Mr Rob Thorne on 08/06/22.

Ecological features

The site supports habitats of low biodiversity value. Birds (nesting) are considered to be an important ecological feature of the site.

Mitigation and enhancement measures

With mitigation measures in place for breeding birds there should be no significant residual adverse effect on protected or priority species.

With enhancements in place (planting new hedgerows and installing bat and bird boxes on nearby trees) there would be a measurable increase in the biodiversity value of the site.

1 INTRODUCTION

1.1 Background and site description

Churton Ecology was instructed by Craig Paddock to carry out an Ecological Impact Assessment of land at Tresaith, Plas Bennion Road, Ruabon, Wrexham LL14 1TP (SJ28696.44251).

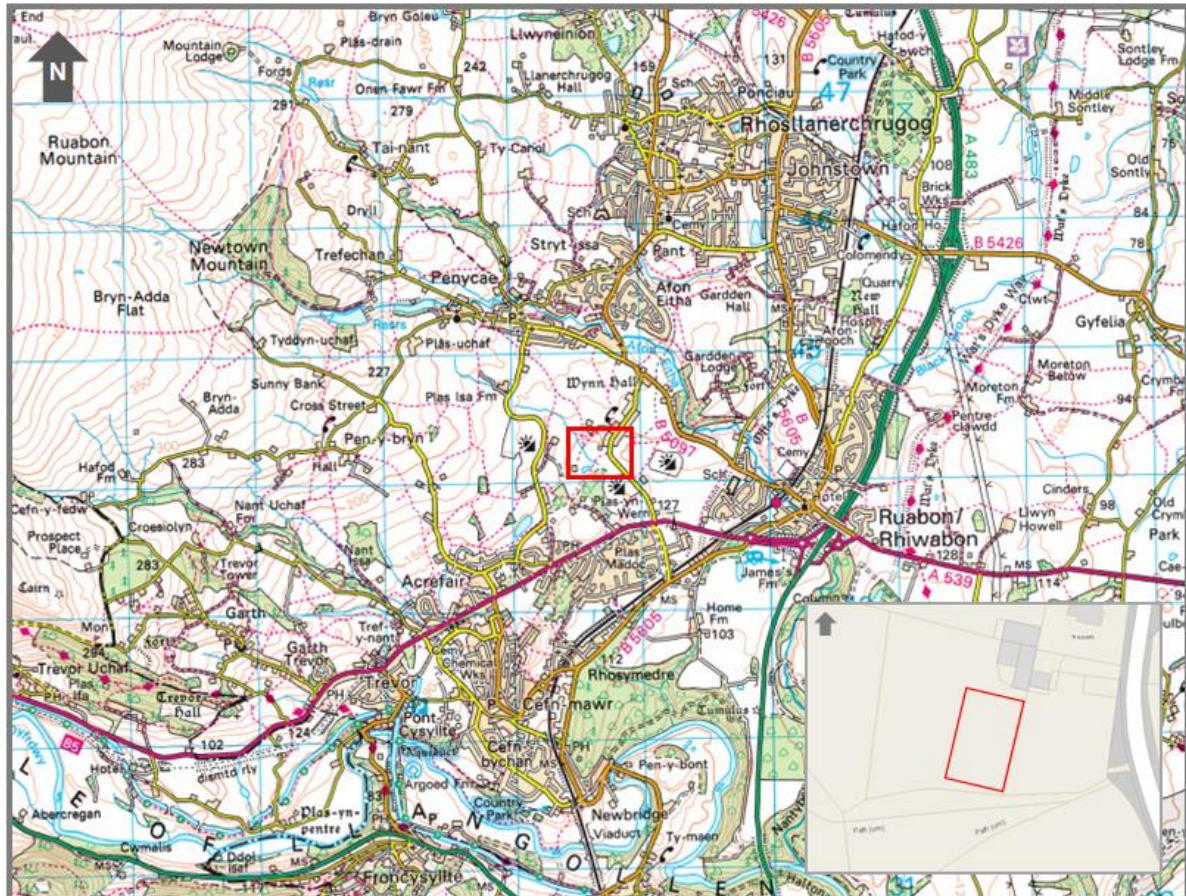


Fig 1: Site location and building layout
OS map licence no. 100048619

A desktop search and general protected species walkover of the site and surrounds aimed to establish the presence or absence of Great Crested Newts, Badger, breeding birds and other protected species with potential to be negatively affected by the development proposal.

The site comprises grazed improved grassland.

1.2 Proposed works

The proposal is for the construction of a manege covering an area of approximately 130m².

2 METHODOLOGY

2.1 Desk study

Sites of international and national conservation significance were sought within 1km of the site. Searches were conducted using the following sources:

- MAGIC maps

OS maps and aerial photographs (Google Earth) were used to identify landscape features of potential ecological interest including hedgerows, tree-lines, ponds, streams, ditches and areas of likely (semi-)natural value.

2.2 Habitat survey

A survey of the site and surrounds was conducted on 08/06/2022 by Mr Rob Thorne (Churton Ecology).

Habitats were assessed and their importance/value noted based on botanic diversity and/or their potential to support uncommon or rare species of flora and fauna (e.g. axiophytes/Red Data Book species).

2.3 Protected species survey

2.3.1 Bats

Field survey

Trees, buildings and other structures with features thought suitable to support bat roosts were identified on and immediately adjacent to the site.

Habitat suitability assessment

A general habitat suitability assessment of the site and surrounds was carried out to determine the likely value of foraging and commuting habitats.

2.3.2 Great Crested Newt

Desktop search

Ponds and other potential breeding habitats were sought within 250m of the site using OS maps and aerial photographs.

Breeding habitat suitability assessment

One pond was broadly assessed for its breeding habitat suitability. A second pond was assessed for its breeding habitat suitability using the Habitat Suitability Index (HSI) method

described by Oldham et al (2000). The pond was also subject to a search for Great Crested Newt eggs and thirty minutes of selective sweep netting was undertaken to locate larvae and/or adults.

2.3.3 Badger

Field survey

Burrows were sought within the site and the 30m surrounds (at least). Other evidence of site use such as paths, snuffle holes, feeding remains and hairs (in burrow spoil or snagged along trails) was also sought. The field boundaries, and specifically the field corners, were searched for evidence of territorial latrine marking activity.

2.3.4 Breeding birds

Field survey

Birds seen or heard during the survey were recorded and old nests were attributed to species where possible.

Habitat suitability assessment

Habitats, with potential to support common, priority or Schedule 1 species of nesting bird were identified within the site and the immediate surrounds.

2.3.5 Other protected and priority species

Habitat suitability assessment

Habitats thought suitable to support other protected or priority species potentially relevant to the site location were also sought. Where no suitable habitats exist and/or where no impacts can be reasonably predicted, species can be discounted from further survey, impact assessment and mitigation - in this instance Dormouse, Otter, Water Vole, White-clawed Crayfish and reptiles

3 RESULTS AND EVALUATION

3.1 Designated sites

Statutory and non-statutory sites

There are no sites of international or national conservation significance within at least 1km of the site.

3.2 Field survey

3.2.1 Habitats on the site

The site is part of a small field that supports intensively grazed improved (horse) pasture with some areas of lightly vegetated poached ground. The presence of Perennial Rye-grass and White Clover indicates a relatively recent history of agricultural improvement. Additional plant species noted included: Common Bent, Yorkshire Fog, Cock's-foot, Soft Meadow-grass, Annual Meadow-grass, Crested Dog's-tail, Soft Brome, Knotgrass sp., Greater Plantain, Hairy Bittercress, Thale-cress, Shepherds Purse, Pineappleweed, Dandelion sp., Yarrow, Common Mouse-ear, Meadow Buttercup, Herb Bennet, Mugwort, Nettle, Creeping Thistle and Broadleaved Dock. An immature Weeping Willow tree is also present in the south-east corner of the site.



P1: Site: viewed from the NW corner, looking SE



P2: Site: viewed from the SW corner, looking NE

The south boundary supports a recently planted (12ft high) hedgerow dominated by Hawthorn with some Dog Rose and Red Norway Maple. The east boundary is fenced and supports a line of four immature trees - Aspen, Alder, Horse Chestnut and Red Norway Maple.

Evaluation and discussion

Improved grassland does not represent a priority habitat and is not considered to be an important ecological feature of the site.

Hedgerow is a UK BAP priority habitat; however, no hedgerow removal is required.

3.2.2 Habitats in the site surrounds

The site is bordered by poor semi-improved grassland to the south and improved pasture to the north, east and west.

An open-fronted agricultural shed, clad in corrugated tin sheeting, is present to the north-east.

3.3 Protected species survey

3.3.1 Bats

Field survey

There are no suitable trees, buildings or other structures on or immediately bordering the site that have the potential to be used by roosting bats. Therefore, roosting bats are not considered to be an important ecological feature of the site.

Habitat suitability assessment

The site is relatively barren and exposed and is unlikely to be of any particular interest to foraging bat species.

The south boundary hedgerow may be used by small numbers of (largely generalist) commuting bat species.

Evaluation and discussion

The south boundary hedgerow may be used by commuting bats; however, there will be no hedgerow loss and no construction or operational phase lighting is proposed.

The site is small and the habitats present are common and widespread and better quality foraging and commuting habitats are available nearby. Accordingly the site is not going to be of intrinsic (sustenance) value to local bat populations. It is, therefore, the opinion of Churton Ecology that no further survey, impact assessment or mitigation is required in relation to this species group.

3.3.2 Great Crested Newt

Desktop search

The site is located in the known geographic range for this species and the species is widespread in this part of the county – Johnstown Newt Sites SSSI/SAC is located 1.5km to the north-east of the site. Given the scale of the development, only ponds within 250m of the site were considered to be potentially relevant to the proposal. Two ponds were identified within this area. There was nothing to indicate the potential presence of any unmapped ponds (from aerial photography).



Fig 2: Pond location plan, with stream running NW to SE

Habitat Suitability Index		Pond 2: SJ2856644082
Distance from the site	Circa: 150m SW	
HSI Categories	HSI Values	HSI Score
Location	optimal	1
Pond area	1500m ²	0.88
Pond drying	never dries	0.9
Water quality	poor	0.33
Shade	70%	0.8
Fowl	major	0.01
Fish	minor	0.33
Pond count	4 (non-isolated)	0.65
Terrestrial habitat	moderate > 25% in 250m surround	0.67
Macrophytes	10%	0.4
Result	Poor	0.41

Fig 3: Pond 2 (P2): HSI result 'Poor'

Breeding (aquatic) habitat suitability assessment

Pond 1 (P1) has been erroneously mapped and is actually a small, fast flowing stream.



P3: Pond 2 (P2): viewed from the SW, looking NE



P4: Pond 2 (P2): viewed from the NW, looking E

Pond 2 (P2) is a large mid-to-late successional (former) lake, heavily overshadowed along its east, south and north margins. The remaining pond is very shallow (just one or two inches deep on average) with occasional pockets of deeper water (just five or six inches deep at most) and its shape is no longer consistent with how it has been mapped i.e. as that of a much larger, coherent body of water. It is clear from its depth that the lake probably comes close to drying most years although this could not be confirmed.

There are large stands of Water Mint and Brooklime scattered throughout the areas of open water to the west; however, these have been grazed by water-fowl and there is little if any submerged aquatic vegetation suitable for egg deposition. The margins are also heavily poached by horses.

The shaded areas of the pond have a dark anaerobic appearance and the more open areas are turbid, silted and stagnant. As a consequence there is very little invertebrate interest and the water quality is poor.

When netted the pond also contained moderate numbers of Three-spined Sticklebacks which appear to have colonised the pond via the stream to the north-east (into which the outfall ditch discharges). As a consequence of all these unfavourable characteristics the pond represents 'poor' potential breeding habitat (see Fig 3 above).

Terrestrial habitat suitability assessment

The site supports poor terrestrial habitat (intensively grazed, improved grassland) located a fairly significant distance (150m) from the nearest standing waterbody (Pond 2).

Great Crested Newt survey

No newt eggs were recorded on the small amount of suitable marginal vegetation present and no newt larvae or adults were netted.

Evaluation and discussion

Ponds with a 'poor' habitat suitability index score typically only support Great Crested Newts where pond densities are high and these types of ponds would typically only be used as a foraging resource by small numbers of wandering individuals. In this instance the pond density in the 1km surround is fairly low (4); therefore, it would be reasonable to conclude that the pond is rarely, if ever, used by foraging individuals. With the exception of two culverted trackways, the site is also isolated from the pond by a small fast flowing stream - this would act as a fairly significant barrier to site dispersal (see Fig 2 above).

In summary the site i) is small ii) supports poor terrestrial habitat iii) is located a significant distance from a pond that is considered unlikely to support Great Crested Newts – with no eggs noted or animals netted and iv) is isolated from the site by a stream. Furthermore, there are no significant areas of suitable terrestrial habitat, or potential breeding habitats, to the north which might otherwise encourage trans-site migrations.

It is, therefore, the opinion of Churton Ecology that no further survey, impact assessment or mitigation is required in relation to this species.

3.3.3 Badger

Field survey

No signs of Badger were recorded within at least 30m of the site.

Evaluation and discussion

Badger is not considered to be an important ecological feature of the site; therefore, no further survey, impact assessment or mitigation is required in relation to it.

3.3.4 Birds

Field survey

Bird species noted singing in the surrounds - and therefore potentially nesting in suitable hedgerow habitats - included Dunnock (a UK BAP), Robin, Chaffinch, Goldfinch, Blackbird and Wren.

Habitat suitability assessment

The site is unsuitable for ground nesting bird species; however, the boundary hedgerows have the potential to be used by a wider range of common and/or priority scrubland nesting bird species. The immature willow tree in the south-east corner of the site may require removal as part of the proposal; however, this is of limited potential value to nesting birds.

Evaluation and discussion

Nesting birds are considered (potentially) to be an important ecological feature of the site (if the willow tree is to be removed) but given the scale and commonality of the habitats present these are likely to be important at the site level only.

3.3.5 Other protected and priority species

There is negligible potential for other protected or priority species to be negatively affected by the proposed development.

4 IMPACT ASSESSMENT

4.1 General

This section considers the potential impacts (and subsequent effects) which might arise from the development in the absence of avoidance measures and/or mitigation. Wherever possible, the negative ecological impact of a development must be avoided. Any residual effects and their level of significance are further discussed with mitigation and/or enhancements in place.

It is important to note that the purpose of an ecological impact assessment is to consider impacts and effects in relation to species and habitats that have some level of international, national or local conservation significance – broadly speaking rare, uncommon or declining species and habitats. These are variously protected by domestic law and priority species have some limited protection under the provisions of the Environmental (Wales) Act – species and habitats listed on the UK/Local biodiversity/habitat action plan and consequently S7 of the Act.

4.2 Site habitats

Significance of effects prior to mitigation

N/A

Significance of residual effects after mitigation

N/A

Significance of residual effects after enhancements

Managing the boundary hedgerows in a more sympathetic manner, infilling existing gaps and creating new hedgerows is likely to have a significant beneficial effect on the local hedgerow network and any associated flora and fauna species.

4.3 Protected species

4.3.1 Bats

Significance of effects prior to mitigation

The development will not result in the deterioration, damage, destruction or obstruction of a bat roost and no bats will be disturbed, captured, injured, killed or transported as a result of the proposal.

Significance of residual effects after mitigation

N/A

Significance of effects after enhancements

The provision of bat boxes on nearby trees could only have a beneficial effect on local bat populations.

4.3.2 Breeding birds

Significance of effects prior to mitigation

The development may result in the very small scale loss of marginally suitable nesting habitat. The impact of this (tree) loss will have no significant adverse effect on local bird populations; however, works that have the potential to damage or destroy the (active) nesting site of a bird would constitute a legal offence.

Significance of residual effects after mitigation

With mitigation measures in place (creating new nesting habitats and appropriately timing any tree removal operations) there will be no significant residual adverse effect on nesting birds or risk of legal offences occurring.

Significance of residual effects after enhancement

The provision of bird boxes on nearby trees could only have a beneficial effect on local bird populations.

Hedgerow planting would provide new nesting habitats suitable for a wide range of scrubland birds including priority species such as Dunnock and Song Thrush. The impact of this could only have a significant beneficial effect on the local bird population.

4.4 Survey constraints

There were no significant survey constraints.

4.5 Protected species legislation

Birds

With the exception of Schedule 1 listed bird species, which receive a higher level of protection against breeding disturbance, all common species of bird are protected during their breeding activities under the Wildlife and Countryside Act 1981

Essentially, this makes it an offence to intentionally take, damage or destroy the nest of any wild bird whilst that nest is occupied or being built; intentionally take or destroy the egg of any wild bird.

4.6 Personnel

Rob Thorne BA (Hons) MRSB has seventeen years' experience surveying sites for development and conservation purposes, covering Ecological Impact Assessment, botanical and vegetation surveys, and is competent to survey for a wide range of protected and priority species. He holds NE and NRW bat (16yrs) and Great Crested Newt (14yrs) survey and numerous mitigation licences and is a long-time member of The Shropshire Bat Group. He holds, or is accredited to work under, survey licences for Barn Owl, White-clawed Crayfish and Dormouse. He is also an experienced reptile and Otter surveyor having undertaken large scale reptile surveys for Natural England (to inform SSSI designations) and the Wildlife Trusts and targeted Otter surveys of watercourses for The Shropshire Mammal Group (as well as for numerous development proposals). He is also experienced in reptile mitigation, habitat management and trans/re-locations and has carried out long-term studies of several Slow-worm populations.

5 PROPOSED AVOIDANCE MEASURES, MITIGATION AND ENHANCEMENTS

5.1 Avoidance measures and mitigation

5.1.1 Breeding birds

The nests of actively breeding birds must be avoided during the works period. If nests are encountered then works must cease or avoid that area until the young have departed the nest. Works that may affect nesting birds (tree removal if considered necessary) must be carried out as follows:

- During the nesting season between March 1st and August 31st after an ecologist has inspected the building for signs of nesting birds. **This may be possible in this instance since the tree offers only marginally suitable nesting habitat and a negative pre-commencement survey may be achievable.**
- Between 31st August and March 1st - outside the breeding season - when birds are unlikely to be nesting. **This is the most suitable means of mitigation.**

5.2 Enhancement recommendations

5.2.1 Habitats

New (native) hedgerows could be planted along any of the open boundaries to enhance the biodiversity of the site.

Native shrub species recommended for hedgerow planting	
Taxon	Common name
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Hawthorn
<i>Quercus robur</i>	Oak
<i>Carpinus betulus</i>	Hornbeam
<i>Taxus baccata</i>	Yew
<i>Viburnum lantana</i>	Wayfaring tree
<i>Prunus avium</i>	Wild Cherry
<i>Sorbus aucuparia</i>	Rowan
<i>Euonymus europaeus</i>	Spindle
<i>Viburnum opulus</i>	Gelder Rose
<i>Acer campestre</i>	Field Maple
<i>Cornus sanguinea</i>	Dogwood
<i>Ilex aquifolium</i>	Holly
<i>Rosa canina</i>	Dog Rose
<i>Sambucus nigra</i>	Elder
<i>Frangula alnus</i>	Alder Buckthorn

Note: Blackthorn is best avoided as its suckering habit will soon scrub over any margins. Hawthorn should comprise 60% of the planting stock. The remaining 40% of the planting stock should comprise an even or varied mix of interplanting using the other species listed in the table above.

All planting must be carried out within the recognised planting season (November to March) and plants must be of local origin/provenance. Plants should be set out in a double staggered row using a total of 5 plants per linear metre, with rows set 225mm apart. All newly planted stock must be fully protected from rabbit damage by the use of tree/shrub guards.

In the second or third year new hedging plants should be hand trimmed to an even height of approximately 750mm to encourage side shoots and the development of a sound base to the hedge. For the following two or three years, the leaders should be allowed to grow unhindered and the sides trimmed only if necessary. After the first 5 years, mechanical hedge trimming can commence OR the native hedge could be allowed to grow up until tall enough to be laid/pleached (approximately 10 years).

It is recommended that the new hedges are subsequently cut only every two to three years to a height of 2 to 2.5m (to allow some fruiting), with cuts carried out in the late winter months. Some Field Maple could be allowed to grow into trees since these do not attain a great height.

Cutting of hedgerow should be done on rotation e.g. only one third cut every three years. It is also recommended that any existing hedgerows could be managed in a similar way to improve their biodiversity value.

5.2.2 Species

Woodcrete bat and bird boxes could be installed on suitable nearby trees.

The locations of these would typically be provided at the Reserved Matters (or a prior to first occupation condition).

6 REFERENCES

- Altringham J. (2011) *Bats: From Evolution to Conservation* Oxford University Press
- Altringham J. (2009) *British Bats* Collins
- Amphibian and Reptile Groups of the United Kingdom (2010) *Great Crested Newt Habitat Suitability Index* ARG UK
- Baker, J. Beebee, T. Gent, T. and Orchard, D. (2011) *Amphibian Conservation Handbook* ARG UK
- Bat Conservation Trust (2016) *Bat Surveys Good Practice Guidelines 3rd ed.* BCT
- Beebee, T. and Griffiths, R. (2000) *Amphibians and Reptiles* Collins New Naturalist
- Beebee, T. (2015) *Amphibians and Reptiles* Collins Pelagic Publishing
- Bright, P. Morris, P. and Mitchell-Jones, T (2006) *The Dormouse Conservation Handbook 2nd edition* English Nature
- CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition.* Chartered Institute of Ecology and Environmental Management, Winchester
- CIEEM (2015) *Guidelines for Ecological Report Writing*
- Dietz, C. and Kiefer, A. (2018) *Bats of Britain and Europe* Bloomsbury Publishing Plc
- Dietz, C. and Nill, D. (2009) *Bats of Europe and Northwest Africa* A & C Publishers Ltd
- Dodd Jr, C. K. (2009) *Amphibian Ecology and Conservation: A Handbook of Techniques* Oxford Biology
- English Nature (2009) *Badgers and Development*
- English Nature (2001) *Great Crested Newt Mitigation Guidelines*
- Fahrbach, M. and Gerlach, U. (2018) *The Genus Triturus* Frankfurt am Main
- Frazer, D. (1983) *Reptiles and Amphibians in Britain* Collins New Naturalist
- Gent, T. and Gibson, S. (2003) *Herpetofauna Workers' Manual* Joint Nature Conservation Committee
- Hedgerow Regulations* (1997) Crown Copyright.
- IEEM (2006) *Guidance for Ecological Impact Assessment in the UK*
- Inns, H. (2011) *Britain's Reptiles and Amphibians* Wild Guides
- Jones, G. [QC] (2012) *The Habitats Directive: A Developer's Obstacle Course?* Hart Publishing
- Jehle, R. Thiesmeier, B. and Foster, J. (2011) *The Crested Newt – A Dwindling Pond Dweller* Laurenti-Verlag
- JNCC (1993) *Handbook for Phase 1 Habitat Survey. A technique for environmental audit* (reprint). Joint Nature Conservation Committee, Peterborough.
- Langton, T. Beckett, C. and Foster, J (2001) *Great Crested Newt Conservation Handbook* Froglife

Marnell F. and P. Presetnik (2010) *EUROBATS Publication Series No. 4: Protection of overground roosts for bats* UNEP / EUROBATS

Mitchell-Jones A.J. and McLeish A. (2004) *Bat Worker's Manual* Joint Nature Conservation Committee

Mitchell-Jones A.J. (2004) *Bat Mitigation Guidelines* English Nature

Natural England (2007) *Disturbance and protected species: understanding and applying the law in England and Wales* Natural England and Countryside Council for Wales

Poulton S.M.C. (2007) *An analysis of the usage of bat boxes in England, Wales and Ireland*

Schofield H.W. (2010) *The Bats of Britain and Ireland* The Vincent Wildlife Trust

Stebbins R. E. and Walsh S. T. (1985) *Bat Boxes: A Guide to the History, Function, Construction and Use in the Conservation of Bats* Bat Conservation Trust

Smith, M. (1973) *Amphibians and Reptiles* Collins New Naturalist

Stace, C (1991) *New Flora of the British Isles* Cambridge University Press

Wilkinson, J. W. (2015) *Amphibian Survey and Monitoring Handbook* Pelagic Publishing

jncc.defra.gov.uk/page-5705 (2015) UK BAP Priority species and habitats

www.magic.gov.uk Magic (for maps and conservation data) Natural England

Google Earth aerial photographs and and/or Bing maps

wtp2.appspot.com/wheresthepath.htm

www.getamap.ordnancesurveyleisure.co.uk/