2016 Updated Extended Phase 1 Habitat Survey at Biddlestone Orchards, Llangarron, Herefordshire

Cotswold Wildlife Surveys

October 2010, April & May 2011, March 2013 and August 2016

CONTENTS

SUMMARY

At Biddlestone Orchards in Biddlestone near Llangarron, Herefordshire, planning permission is being sought for changes to the agricultural use of the site, including the provision of 31.6 ha of polytunnels and creation of a camping village for the seasonal workers.

In July 2010, Cotswold Wildlife Surveys carried out an Extended Phase 1 Habitat Survey of the site. This was undertaken to determine the presence of any important habitats or species which might be impacted on by the proposed activities.

Ecological data was received from Herefordshire Biological Records Centre, this revealing a number of records of European Protected Species, UK Biodiversity Action Plan (UKBAP) and Local Biodiversity Action Plan (LBAP) species within a 2.0 km radius of the site.

None came from the site itself, but close by there were multiple records of Great Crested Newts *Triturus cristatus*, common amphibians, several bat species, various farmland birds, and Barn Owl *Tyto alba*.

There were no statutory sites within a 2.0 km radius of the orchards, but there were three Special Wildlife Sites (SWS) in the study area. Of these one adjoined the western boundary of the application site (Upper Heath and Lower Heath Woods SWS). Given the nature of the proposed works, there will be no impact on the woodlands.

There was no connectivity between the other SWS and the application site, and the intervening land use included roads, rural housing and intensive arable farming.

The initial Phase 1 visit took place on 29th July, with extra visits on 1st October 2010, 14th March 2013 and 18th August 2016. Additional incidental checks were made during the Great Crested Newt surveys in April and May 2011 and May/June 2015. The weather in July 2010 was calm and warm with bright sunshine, in October 2010 it was overcast and still with light rain at times, whilst in March 2013 and August 2016 it was bright and sunny with little wind.

The site was very large in extent (c53 ha), and comprised a series of fields bordered by native mixed species hedgerows and lines of trees. Some of the hedgerows contained mature broadleaved trees.

In 2010 the fields were under continuous cultivation for arable, root crops and commercial fruit production, the latter including polytunnels.

Around some of the fields there were grass margins, and under the few areas of fruit trees there was improved grassland. A large block of tall ruderal vegetation lay beneath one of the older orchards near the centre of the site.

There was no running water, just a few dry ditches, but there were two ponds, one of which only held water during periods of heavy rain, and this was confirmed when another visit took place in March 2013, when the pond was full after a long period of rain.

No rare vascular plants were found, and all species recorded were common and widespread.

A total of 12 species of birds were observed, all of which were Species of Low Conservation Concern (RSPB Green list). Several of these birds were potentially nesting in the hedges, and trees around the field boundaries.

In addition to this, the site visit on 14th March 2013 revealed c10 Barn Owl *Tyto alba* pellets around the base of a tree with a large internal cavity, although when approached a Stock Dove *Columba oenas* flew out. This tree is to be retained, and a Barn Owl box will be erected nearby.

Most of the hedgerows are to be retained, but a short section along the northeastern boundary is to be removed for access. This boundary hedge originally contained a large number of non-native species, along with several trees that were over-mature, dead, dying and potentially hazardous. These were all removed and the remaining native plants are regenerating vigorously.

Since all in-use bird's nests and their contents are protected from damage or destruction, all tree and shrub removal has been undertaken outside the period 1st March to 31st August inclusive. If any additional tree and shrub removal is required, and this time frame cannot be avoided, a close inspection of the trees and shrubs to be removed will be undertaken by an ecologist prior to clearance. Work will not be carried out within 5.0 metres of any in-use nest, although this distance could be more depending on the sensitivity of the species.

Some of the trees within the curtilage of the site supported features such as decay cavities, woodpecker holes, fissures and exfoliating bark, that would be considered suitable for bat roosting and/or hibernation. These included a small number of mature Pedunculate Oak *Quercus robur* trees that were present along the hedgerows on the western side of the site. All of these trees are to be retained. And in fact, in March 2013 one of these trees was supporting a Barn Owl. Bats recorded during the torchlight surveys for Great Crested Newts in late May 2011 included Common and Soprano Pipistrelles *Pipistrellus pipistrellus* and *P. pygmaeus*, and Noctule *Nyctalus noctula*.

There were no Badger *Meles meles* setts on the site, nor any signs of Badger activity, and no animals were seen during a nocturnal survey on 28th April 2011.

The site appeared to have low potential for reptiles, and no specific surveys were considered necessary. Instead care will be taken at all times when removing vegetation and topsoil stripping. Any reptiles (or small mammals) disturbed or uncovered will either be caught by hand and relocated to a safe area, or left to vacate the work site in their own time.

As a high population of Great Crested Newts had previously been recorded in ponds adjacent to the site boundary, a full survey was carried out in April and May 2011. This confirmed the continued presence of a high population of Great Crested and Smooth Newts *Triturus vulgaris* in the shallow pond (Pond 2) in the village near the current main entrance to the site.

In addition, small populations of both species were discovered in the pond (Pond 1) in the centre of the site. All other ponds in the area were either dry throughout the survey period, or were unsuitable for amphibians due to large numbers of coarse fish and wildfowl.

In May and June 2015, six visits were made to Pond 1 to re-survey for newts. Pond 2 was also re-surveyed, as access was granted to allow a closer inspection.

In Pond 1 the surveys revealed a maximum count of 25 Great Crested Newts by torchlight searches, and a maximum catch of nine Great Crested Newts in the bottle traps. A similar size population of Smooth Newts was also present. No eggs were found, but the vegetation was difficult to access due to the depth of water and silt on the bottom of the pond.

Six torchlight searches of Pond 2 revealed a maximum count of two Great Crested Newts, whilst no bottle traps were set due to the very shallow water. No eggs were found.

The water quality in Pond 2 had significantly deteriorated since the previous surveys in 2011, and this was thought to be the cause for the decline in the population size of Great Crested and Smooth Newts.

The creation of the camping village for the seasonal workers is not considered to be detrimental to Great Crested Newts in the area, and the accommodation pods may actually provide potential hibernation sites for newts under the concrete blocks. The land between the pods will remain as grassland, and there will be no obstruction to newt movement around the area. Indeed, log piles will be placed strategically around the site to act as refuges for commuting Great Crested Newts.

Furthermore, the installation of the pods will be a gradual process and may take up to three years, so there won't be a sudden or extensive impact on the habitat near the pond.

The balancing ponds/irrigation reservoirs will use rainwater harvesting, and will be near to hedgerows, thereby providing extra habitat for the newts. Around the sides of the reservoirs native emergent and aquatic plants will be established.

One of the reservoirs near the existing site entrance to the south will cut through the ditch that runs down toward Pond 2. As this may be allowing newts to commute between ponds, an alternative ditch will be created to provide newts with unrestricted access while construction is going on.

The polytunnels too will be set on grassland, so newts will potentially have access for foraging across the whole site, not just the boundaries, hedgerows and ditches as they have at present.

Finally, Pond 1 will be enhanced for Great Crested Newts. This will be achieved by cutting back some of the overhanging branches of the trees around the pond, and by removing much of the branch debris from the water.

This will let in more light and will favour the growth of aquatic plants which newts will be able to lay their eggs on. There will also be an increase in aquatic invertebrates which the newts can eat.

As the newts will be moving along internal boundaries, these are to be retained to maintain the connectivity between the breeding ponds and the surrounding terrestrial habitat.

Finally, if excavations are to be undertaken, it should be noted that open trenches could potentially trap wildlife, especially if these fill up with water. Escape routes should therefore be provided if trenches cannot be infilled immediately. These can be in the form of branches or boards placed on the bottom of the trench, with their upper ends above ground level and touching the sides, or sloping ends left in trenches.

1. INTRODUCTION

1.1 Background and survey objectives

At Biddlestone Orchards in Biddlestone near Llangarron, Herefordshire, planning permission is being sought for changes to the agricultural use of the site, including the provision of 31.6 ha of polytunnels and creation of a camping village for the seasonal workers.

In July 2010, Cotswold Wildlife Surveys was instructed to carry out an Extended Phase 1 Habitat Survey of the site. This was undertaken to determine the presence of any important habitats or species which might be impacted on by the proposed activities. Additional site visits were undertaken on 1st October 2010, 14th March 2013 and 18th August 2016, with incidental checks made during the Great Crested Newt surveys in April and May 2011 and May/June 2015.

Ecological data was received from Herefordshire Biological Records Centre, this revealing a number of records of European Protected Species, UK Biodiversity Action Plan (UKBAP) and Local Biodiversity Action Plan (LBAP) species within a 2.0 km radius of the site.

1.2 Site description

The site was very large in extent (c53 ha), and comprised a series of fields bordered by native mixed species hedgerows and lines of trees.

Some of the hedgerows contained mature broadleaved trees including Pedunculate Oak, Alder *Alnus glutinosa* and Ash *Fraxinus excelsior*, whilst the hedgerows themselves consisted predominantly of Hawthorn *Crataegus monogyna*, Hazel *Corylus avellana*, Blackthorn *Prunus spinosa*, and Elder *Sambucus nigra*, with some Holly *Ilex aquifolium*, Wych Elm *Ulmus glabra*, Field Maple *Acer campestre* and Goat Willow *Salix caprea.*

The lines of trees were mostly single species, including Silver Birch *Betula pendula*, Alder, and conifers such as Leyland Cypress *Cuprocyparis leylandii.*

The fields were under continuous cultivation for arable, root crops (potatoes) and commercial fruit production (apples and cherries), with one narrow field containing lines of polytunnels producing soft fruit.

Around some of the fields there were grass margins, and under most of the orchards there was improved grassland. The swards were dominated by Cocksfoot *Dactylis glomerata*, meadow-grasses *Poa spp.,* Perennial Ryegrass *Lolium perenne*, Creeping Fescue *Festuca rubra* and False Oatgrass *Arrhenatherum elatius*, whilst wildflowers included Creeping Buttercup *Ranunculus repens*, Red Campion *Silene dioica*, Garlic Mustard *Alliaria petiolata* Red Clover *Trifolium pratense*, White Clover *T. repens,* Black Medick *Medicago lupulina,* Common Vetch *Vicia sativa,* Hairy Tare *V. hirsuta,* Dovesfoot Cranesbill *Geranium molle,* Daisy *Bellis perennis*, Common Cleavers *Galium aparine*, and Dandelion *Taraxacum* Section *Vulgaris.*

A large block of tall ruderal vegetation lay beneath the cherry orchard near the centre of the site. Species included Common Nettle *Urtica dioica*, Broad-leaved Dock *Rumex obtusifolius*, Curled Dock *R. crispus*, Cow Parsley *Anthriscus sylvestris*, Hogweed *Heracleum sphondylium*, Rosebay Willowherb *Epilobium angustifolium*, Wild Teasel *Dipsacus fullonum*, and Creeping Thistle *Cirsium arvense.*

There was no running water, just a few dry ditches, but there were two ponds, one of which only held water during periods of heavy rain, and in March 2013 it was full after long periods of rain. The other pond was permanently wet, but it was full of twigs and branches from surrounding Crack Willows *Salix fragilis*, and as the spring progressed it became choked with blanket weed.

Between the cherry orchard and the pond there was a small grass area with caravans parked on it.

The Ordnance Survey Grid Reference is SO 538 234 centred on the middle of the plot.

1.3 Proposed works

The reaming orchards are to be removed and the land used for agricultural purposes, including 31.6 ha of polytunnels and the creation of a camping village for the seasonal workers (Plan 1).

Plan 1 Proposed site layout

2. METHODOLOGY

2.1 Desk study

A detailed desk study was undertaken to determine the nature conservation designations and protected species that had been recorded within a 2.0 km radius of the site. This involved contacting statutory and non-statutory organisations, and then assimilating and reviewing the data provided.

The consultees for the desk study were:

- Multi Agency Geographic Information (MAGIC) website www.magic.gov.uk;
- National Biodiversity Network Gateway website;
- Herefordshire Biological Records Centre.

2.2 Habitat survey

An Extended Phase 1 Habitat Survey was carried out across the whole of the survey site. It was conducted using standard JNCC (2003) techniques and methodologies.

A series of Phase 1 visits took place on 29th July, 1st October 2010, 14th March 2013, and 18th August 2016, with incidental checks made during the Great Crested Newt surveys in May 2011 and May/June 2015. The weather in July 2010 was calm and warm with bright sunshine, whilst in October 2010 it was overcast and still with light rain at times. In March 2013 and August 2016 it was bright and sunny with a light wind.

2.3 Protected species survey

During the survey visits the potential for other protected and important species was assessed. This included European Protected Species, legally protected species and Local Biodiversity Action Plan Species (and habitats).

2.3.1 Badgers

Badgers are generally nocturnal and evidence of their presence in an area often comes from field signs rather than sightings of the animals. Useful field signs include:

- Setts (main, outlying, annex or subsidiary)
- Tufts of hair caught on barbed wire fences;
- Conspicuous Badger paths;
- Footprints;
- Latrines – small excavated pits in which droppings are deposited;
- 'Snuffle holes' – small scrapes where Badgers have searched for insects and plant tubers;
- Day nests – bundles of grass and other vegetation where Badgers may sleep above ground;

- Scratch marks on trees (usually near the sett).

Daytime surveys looking for field signs can be carried out at any time of the year, and should be non-intrusive, but nocturnal surveys of setts (if required), are only likely to be effective from April to November, when Badgers are most active, and any cubs present will have emerged.

Main setts

These usually have a large number of holes with large spoil heaps, and the sett generally looks well used. They usually have well used paths to and from the sett and between sett entrances. Although normally the breeding sett is in continual use, it is possible to find a main sett that has become disused because of excessive digging or for some other reason, in which case it is recorded as a disused main sett.

Annex setts

These are always close to a main sett, usually less than 150 m away, and are usually connected to the main sett by one or more obvious, well worn paths. They consist of several holes, but are not necessarily in use all the time, even if the main sett is very active.

Subsidiary setts

These often these have only a few holes, are usually at least 50 m from a main sett, and do not have an obvious path connecting them with another sett. They are not continuously active.

Outlying setts

These usually only have one or two holes, often have little spoil outside the hole, have no obvious path connecting them with another sett, and are only used sporadically. When not in use by badgers, they are often taken over by Foxes or even Rabbits. However, they can still be recognised as Badger setts by the shape of the tunnel (not the entrance hole), which is at least 250 mm in diameter and rounded or flattened oval in shape.

Checks for Badger activity were undertaken during the survey visits on 29th July, 1st October 2011 and 18th August 2016, whilst a nocturnal survey was carried out on 28th April 2011, when the site was walked over with occasional sweeps using a Cluson CB2 Clulite torch.

2.3.2 Bats

In order to fully assess bat occupation of a particular site, the Bat Conservation Trust (2016) recommends that information gathered from a desk study of known bat records, and a daytime site walkover, is used to inform the type and extent of future bat survey work, potentially including nocturnal surveys.

The diurnal walkover provides an opportunity to check for signs of occupancy, such as droppings, scratch marks, feeding remains, carcasses, or even animals in residence, whilst nocturnal surveys (if required) allow numbers and species of bats to be confirmed.

The latter are also used to determine the presence or absence of bats, where signs of bat activity are indeterminate or absent but the suitability for bat roosting is considered to be low, medium or high.

Roosting places vary depending on the species. Pipistrelles usually inhabit narrow cracks or cavities around the outside of buildings, but they will roost in similar niches inside larger barns. Typical sites include soffit spaces, gaps behind fascia boards and end rafters, crevices around the ends of projecting purlins, under warped or lifted roof and ridge tiles, or in gaps in stone and brickwork where mortar has dropped out.

Larger species such as Brown Long-eared Bats *Plecotus auritus*, Myotis bats (Natterer's *Myotis nattereri* and Whiskered/Brandt's *M. mystacinus/M. brandtii*), and Lesser Horseshoes *Rhinolophus hipposideros*, like to roost in the roof voids of buildings, and can often be found hanging singly or in small groups from ridge boards or roof timbers, especially where these butt up against gable walls or chimney breasts. They especially favour older structures with timber frames. Here they squeeze into tight crevices making them difficult to observe.

Diurnal walkovers can be carried out at any time of the year, but nocturnal surveys should only be undertaken when bats are out of hibernation and in their summer roosts. The recommended period is from May to September inclusive, with May to August optimum and September sub-optimum. The season can be extended into October, although particularly cold weather will render this inadvisable. Indeed, the air temperature at the start of each survey must be at least 10°C or above.

Visits will be a minimum of two weeks apart, and the number of surveys is dependent on the evidence found or the suitability of the site to bats.

Where bats are found, or there is evidence of bat occupation or activity, i.e. that bat use is confirmed, the number and timing of visits will be decided by the ecologist, and will be appropriate for the type of roost. In general at least two nocturnal surveys will be carried out, both of which can be emergence surveys, or one emergence and one dawn re-entry.

Where there is no evidence of bat presence, and no suitability for roosting, no nocturnal surveys will be needed.

For a site with no evidence but low suitability, just one nocturnal emergence survey is required, this to be in the optimum period.

For medium suitability a minimum of two visits are needed, of which one must be in the optimum period, and one must be a dawn re-entry survey. With high suitability, three visits will be necessary, of which two must be in the optimum period. At least one of these must be a dawn re-entry survey, with the third visit either an emergence or a dawn re-entry.

For sites < 5 ha in size, and/or regularly shaped structures, at least two surveyors must be present, with more surveyors at larger sites and more complex buildings, e.g. those with multiple elevations and/or roof structures.

As there were no buildings, trees were inspected by Andy Warren (Natural England bat licence No. 2015-16849-CLS-CLS) for any gaps in the bark, patches of exfoliating bark, fissures, splits, cracks and cavities, including woodpecker holes.

Where appropriate, cavities and crevices were inspected with a penlight and an endoscope, whilst 10x42 Nikon binoculars and a Fenix TK75 torch were used for the inaccessible/unreachable areas.

As there are to be no significant changes to the field boundaries, with minimal development on the site, it was considered that activity surveys were not required. However, during the nocturnal Badger survey and torchlight searches for Great Crested Newts, an electronic BatBox Duet bat detector and minidisc recording equipment was used to record incidental bat activity.

2.3.3 Birds

Most resident and migrant birds breed in the spring and summer, although Woodpigeons *Columba palumbus* and Collared Doves *Streptopelia decaocto* nest throughout the year, and as a result could be on eggs in almost any month.

In season, signs of breeding include singing males, display and copulation, birds gathering nesting materials, adults carrying food, calling chicks, etc.
In winter none of these activities may be occurring, so a survey for old nests and/or nest holes is the most reliable method of determining the presence or absence of breeding birds.

At Biddlestone Orchards, resident and migratory birds were surveyed during the Phase 1 visits on 29th July and 1st October 2010.

The surveys involved a walkover of the site, this taking in all the main habitats, in particular the hedgerows.

2.3.4 Great Crested Newts

A survey for Great Crested Newts (GCN) may be indicated when background information on distribution suggests that they may be present. More detailed indicators are:

- *Any historical records of Great Crested Newts on the site or in the general area*
- *A pond on or near the site (within around 500 m), even if it holds water only seasonally*
- *Sites with refuges (such as piles of logs or rubble), grassland, scrub, woodland or hedgerows within 500 m of a pond*.

There are several field survey methods which can be employed depending on the time of year:

- *Bottle or funnel trapping – adults ideally February to May, with June and July sub-optimal, and August to September for detection of larvae (i.e. young)*
- *Egg search – April to June ideally, with March and July sub-optimal*
- *Torch survey – March to May for adults, with February and June to July sub-optimal, and August to September for larvae*
- *Netting – March to May for adults, with February and June to July sub-optimal, and August to September for larvae*
- *Pitfall trapping – March to May and September for adults, with February, June to August and October sub-optimal*
- *Refuge search – April to September ideally, with March and October sub-optimal.*

The latter two methods involve terrestrial habitats, the others aquatic habitats, for which a minimum of 4 visits per year are recommended, with at least 2 visits between mid-April and mid-May to record peak numbers (English Nature, 2001). If Great Crested Newts are subsequently found, two additional visits should be carried out, one of which is to be between mid-April and mid-May (making three visits in total).

On the evenings of 28th and 30th April, and 5th, 13th, 17th and 25th May 2011, 16 bottle traps were set around a small pond in the orchards. Torchlight searches of this pond were also undertaken, in addition to searches of several other ponds within 500 m of the site boundaries.

Another six visits were carried out on 5th, 12th, 15th and 27th May and 2nd and 10th June 2015. These were undertaken to check for any changes in the newt populations.

The surveys were carried out by Andy Warren (Natural England Great Crested Newt Licence No. 2016-20071-CLS-CLS).

The bottle-traps (converted 2 litre soft drink bottles) were placed, as far as possible and practical, at two metre intervals around the margins of the ponds to be surveyed. Each bottle was attached to a cane and held at an angle such that it retained an air pocket in the inverted bottom. Traps were placed after 16:00 hrs each afternoon and collected before 10:00 hrs the following day. Amphibians were handled only with wet hands. They were identified, counted, sexed and returned to the point of capture without undue delay.

The torchlight surveys used a 1,000,000 candle power Clulite CB2 torch and were carried out after dark. Egg searches were made during the morning visits when checking the bottle traps.

Population Size Class Method

An assessment of population size and class was carried out following the standard guidance described in the Great Crested Newt Mitigation Guidelines (English Nature, 2001).

The method stipulates that the maximum adult count per pond per night gained through torch survey or bottle-trapping can be used and expressed as 'peak counts' per pond. This figure enables the populations to be classified as:

- 'small' for maximum counts up to 10;
- 'medium' for maximum counts between 11 and 100;
- 'large' for maximum counts over 100.

Habitat Suitability Index

An evaluation system devised by Oldham *et al* (2000) can produce a figure that indicates the suitability of a pond for Great Crested Newts. The index is based on an analysis of ten factors that affect Great Crested Newts. A figure of '0' indicates unsuitable habitat and '1' represents optimal habitat.

The ponds were not scored, as Great Crested Newts were known to be present.

2.3.5 Otters

Otters are nocturnal and are active all year round. They are large with an adult male reaching up to 1.2 m from nose to tail, and weighing about 10 kg.

Feeding mainly on fish and amphibians, Otters live by undisturbed waters where there is plenty of cover, mostly by freshwater lakes, rivers and quiet small streams as well as some coasts.

An Otter may use over 40 km of river and needs many resting places throughout this range. A female otter will give birth to 1 to 3 cubs in a natal holt, which is often away from the main river and must be completely undisturbed. Field signs include:

- Prints in soft mud;
- Spraints (faeces);
- Holts.

Daytime riparian mammal surveys were undertaken on 29th July and 1st October 2010 and 18th August 2016. These involved walking the length of any ditches or watercourses on the site, including those adjacent to the site boundary.

2.3.6 Reptiles

Commoner reptiles which may be encountered in rural areas include Grass Snake *Natrix natrix*, Slow-worm *Anguis fragilis*, and Common Lizard *Zootoca vivipara*.

During the winter months, from mid-October to late February or early March, they are in hibernation, usually deep in underground hibernacula, such as holes and cracks in the ground, among rocks or the roots of large trees, down animal burrows, or in piles of rubble or stone.

In the spring and summer they live above ground in well-vegetated places, with Grass Snakes often near or in water. Being cold-blooded all reptiles like to bask, and can often be found in open places.

There are very few signs of reptile presence, but these include:

- Shedded skin (snakes);
- Eggs (but not Common Lizard which gives birth to live young).

2.3.7 Water Voles

The Water Vole is the largest of the British voles. It lives in a series of holes or burrows at the water's edge and can be found along the banks of ditches, streams, rivers, lakes and canals.

Although Water Voles live in colonies, the breeding females are territorial, each defining their contiguous territory with latrines during the breeding season. This lasts from March to October.

The Water Vole is herbivorous, feeding primarily on the lush aerial stems and leaves of waterside plants. Its activity is normally confined to the area within two metres of the watercourse, the bankside vegetation in this area not only essential for food, but also for cover from predators.

Water Vole activity can be assessed by looking for the following signs:

- Burrows;
- Faeces and latrines;
- Feeding stations;
- Runs;
- Paw prints in areas of soft mud;
- Feeding 'lawns';
- Predator field signs.

Daytime riparian mammal surveys were undertaken on 29th July and 1st October 2010 and 18th August 2016. These involved walking the length of any ditches or watercourses on the site, including those adjacent to the site boundary.

3. RESULTS

3.1 Desk study

3.1.1 Designated sites

Statutory Sites
The study found that there were no Statutory sites with a 2.0 km radius of the application site.

Non-Statutory Sites
The site listings supplied by Herefordshire Biological Records Centre confirmed that Biddlestone Orchards was not designated or identified as an area of wildlife importance or interest. However, within the 2.0 km search area there three Special Wildlife Sites (SWS):

SO42/22 Garren Brook SWS
The register states: "Much of this brook has a good, wooded margin of alder and willow. The associated plants include common meadow-rue, water-crowfoot and some interesting bryophytes"
Date 1990.

SO52/04 Upper Heath and Lower Heath Woods SWS
The register states: "Both woodlands are oak dominated, with other species such as birch, hazel and willow."
Date 1990.

SO52/09 Wilson Farm Ponds SWS
The register states: "Two large ponds with open water and a good margin of trees.
Water plants include amphibious bistort and yellow iris.
Tufted duck and moorhen have been recorded."
Date 1990.

Of these, Upper Heath Wood SWS adjoined the orchards along the western boundary. Given the nature of the proposed works, there will be no impact on the woodland.

There was no connectivity between the other SWS and the application site, and the intervening land use included roads, rural housing and intensive arable farming.

A map showing these sites in relation to Biddlestone Orchards is shown in Appendix 3.

3.1.2 Protected species

Ecological data supplied by Herefordshire Biological Records Centres revealed a number of records of UK Biodiversity Action Plan (UKBAP) and Local Biodiversity Action Plan (LBAP) species within a 2.0 km radius of the site.

None came from the site itself, but close by there were multiple records of Great Crested Newts, common amphibians, several bat species, various farmland birds, and Barn Owl.

The closest Great Crested Newts were in the shallow pond in the village next to the existing entrance to the orchards site. Here up to 127 animals were recorded in 2005, a high population, along with Smooth and Palmate Newts *Triturus helvetica*, and Common Frog *Rana temporaria*. Small numbers of Great Crested Newts were also found in the pond in Upper Heath Wood SWS to the west of the orchards.

Six species of bats were noted, including Common and Soprano Pipistrelles, Brown Long-eared, Noctule *Nyctalus noctula*, Natterer's *Myotis nattereri*, and Whiskered/Brandt's *M. mystacinus/M. brandtii*. Several of these were noted in the nearby village immediately to the southeast of the orchards, with five species at a farm approximately 500 m to the south.

Barn Owls *Tyto alba* were recorded in Biddlestone village, whilst a variety of farmland birds such as Skylark *Alauda arvensis*, Yellow Wagtail *Motacilla flava flavissima*, Yellowhammer *Emberiza citrinella* and Linnet *Carduelis cannabina* were present at a site approximately 400 m to the northeast.

A map showing the locations of protected species (excluding the positions of any Badger setts) are shown in Appendix 4.

3.2 Habitat survey

3.2.1 Habitat descriptions

The following habitats were recorded across the site:

- Orchard;
- Scattered broadleaved trees;
- Line of trees;
- Semi-improved grassland;
- Dry ditch;
- Standing water;
- Arable;
- Tall ruderal vegetation;
- Hedge with trees;
- Track.

These are shown on the Phase 1 Habitat Survey map in Appendix 1, with the target notes (where applicable) in Appendix 2.

Orchard

As the name implies, there were originally several orchards across the site. These were largely producing apples (Figs. 1 and 2), and were managed on a commercial basis, i.e. they were heavily pruned with closely mown improved grass strips between the trees and bare ground beneath. By 2016 these had largely been replaced by arable cropping

Figs. 1 & 2 Apple orchards

In the centre of the site there was an older cherry orchard. The trees were much larger and the ground below was overgrown with tall ruderal vegetation (Fig. 3). At one end of the orchard there was a grass area on which a number of pickers' caravans were sited (Target Note 7).

Close to the cherry orchard there was a narrow field on which polytunnels were erected (Fig. 4 – Target Note 8). These were producing soft fruit.

Fig. 3 Cherry orchard

Fig. 4 Polytunnels

Scattered broadleaved trees

Around the orchards there were a small number of scattered broadleaved trees, these mainly Pedunculate Oaks (Target Note 1) with a couple of Ash (Figs. 5 and 6).

Figs. 5 & 6 Scattered broadleaved trees

Lines of trees

Some fields were screened by lines of trees, these mostly single species including Silver Birch (Fig. 7), Alder (Fig. 8), and conifers such as Leyland Cypress.

Figs. 7 & 8 Lines of trees

Semi-improved grassland

Around some of the fields there were grass margins, and under most of the orchards there was improved grassland. The swards were dominated by Cocksfoot, meadow-grasses, Perennial Ryegrass, Creeping Fescue and False Oatgrass, whilst wildflowers included Creeping Buttercup, Red Campion, Garlic Mustard Red Clover, White Clover, Black Medick, Common Vetch, Hairy Tare, Dovesfoot Cranesbill, Daisy, Common Cleavers, and Dandelion (Ref. Figs 1, 2, 17, 18 and 20).

Dry ditch

There was no running water, just a few dry ditches, these presumably holding water only during periods of heavy rainfall. One of the ditches ran from the pond in the middle of the site, down the side of the field containing the polytunnels, and linking to the shallow pond near the main entrance (Fig. 9).

Fig. 9 Dry ditch

Standing water

There were two ponds on the site. One of these (Pond 1) was permanently wet, but it was full of twigs and branches from surrounding Crack Willows, and as the spring progress it became choked with blanket weed (Figs. 10 and 11 – Target note 2). By 2016 it was very overgrown with regenerating willows (Fig. 12). The other pond was dry and overgrown and presumably only held water during periods of heavy rain (Fig. 13 – Target Note 3).

Figs. 10 & 11 Pond 1 in 2011

Fig. 12 Pond 1 in August 2016

Fig. 13 Dry pond

During the site visit in March 2013 the dry pond (presumed to only hold water after periods of heavy rain) was in fact full, as after a very wet season water had been channelled off the fields into it.

Arable

Excluding the orchards, the remaining fields were under continuous cultivation for arable (wheat/barley – Figs. 14 and 15) and root crops (potatoes – Fig. 16). These were intensively managed and there were virtually no weeds or grasses.

Figs. 14 & 15 Arable fields

Fig. 16 Potatoes

Tall ruderal vegetation

A large block of tall ruderal vegetation lay below the cherry orchard near the centre of the site (Figs. 17 and 18).


Figs. 17 & 18 Tall ruderal vegetation under cherry orchard

Species included Common Nettle, Broad-leaved Dock, Curled Dock, Cow Parsley, Hogweed, Rosebay Willowherb, Wild Teasel, and Creeping Thistle.

Hedge with trees

Some of the hedgerows contained mature broadleaved trees including Pedunculate Oak, Alder and Ash, whilst the hedgerows themselves consisted predominantly of Hawthorn, Hazel, Blackthorn, and Elder, with some Holly, Wych Elm, Field Maple and Goat Willow (Figs. 19-22).




Figs. 19-22 Hedges and trees

Track

Running across part of the site, from an entrance just off the lane through Biddlestone village, there was a simple stoned track.

3.2.2 Flora

The botanical composition of each habitat was typical, and all species recorded were common and widespread. No rare vascular plants were found, and there were no invasive species or notifiable weeds.

A list of species observed is presented in Appendix 5.

3.3 Protected species survey

3.3.1 Bats

Some of the trees within the curtilage of the site supported features such as decay cavities, woodpecker holes, fissures and exfoliating bark, that would be considered suitable for bat roosting and/or hibernation.

The high potential trees (Category 2a in Bat Conservation Trust's Good Practice Guidelines), included a mature Pedunculate Oak tree that was growing next to the dry pond (Target Note 6), and the short row of four Pedunculate Oaks growing in the southwest arable field (Ref. Fig. 6).

Bats recorded during the torchlight surveys for Great Crested Newts in late May 2011 included Common and Soprano Pipistrelles and Noctule. None of these animals were thought to have emerged from the site.

3.3.2 Badgers

There were no Badger setts on the site, nor any signs of Badger activity, and no animals were seen during a nocturnal survey on 28th April 2011.

3.3.3 Otters

No evidence of Otter *Lutra lutra* presence was found.

3.3.4 Water Voles

No evidence of Water Vole *Arvicola amphibius* presence was found.

3.3.5 Birds

A total of 12 species of birds were observed, all of which were Species of Low Conservation Concern (RSPB Green list). Several of these birds were potentially nesting in the hedges, and trees around the field boundaries.

During the site visit in March 2013 one of the trees had c10 Barn Owl pellets around the base of the trunk, beneath a large cavity. When the tree was approached a Stock Dove flew out, indicating it is no longer in use by the owl.

A full list of species noted is given in Appendix 6.

3.3.6 Reptiles

No reptiles were observed during the site visits, and the site was generally thought to have low potential for reptiles due to the intensive management which left little in the way of suitable foraging habitat or refugia.

3.3.7 Great Crested Newts

As a high population of Great Crested Newts had previously been recorded in ponds adjacent to the site boundary, a full survey was carried out in April and May 2011.

This confirmed the continued presence of a high population of Great Crested and Smooth Newts in the shallow pond (No. 2) in the village near the current main entrance to the orchards (Figs. 23 and 24 – Target Note 4).


Figs. 23 & 24 Shallow pond in village in 2011 with high newt populations

All other ponds in the area were either dry throughout the survey period, or were unsuitable for amphibians due to large numbers of coarse fish and wildfowl (e.g. the fishing lake to the south of the site – Figs. 25 and 26 – Target note 5).


Figs. 25 & 26 Fishing lake in 2011

The small pond in Upper Heath Wood SWS was not investigated, as any Great Crested Newts present would either stay within the woodland or migrate to rough ground to the south and west. Animals would not move into the application site, as the land adjacent to the woodland was managed intensively for potatoes.

The dry pond was also not investigated, as the first time it was recorded to have water in was March 2013 after it had been used as drainage from the fields.

Within the application site there was just one pond (Pond 1) which held water.

On the evenings of 28th and 30th April, and 5th, 13th, 17th and 25th May 2011, 16 bottle traps were set around the pond. Torchlight searches were also undertaken.

In addition, torchlight searches of the other ponds within 500 m of the site boundaries (excluding the pond in the SWS) were also made. Only the shallow pond (Pond 2) in the village near the main entrance held any newts.

Presence/Absence

During the six visits there was a maximum count of 12 Great Crested Newts in Pond 1, along with small numbers of Smooth Newts. No eggs for any newt species were found during the surveys, as there were no emergent or floating plants which provided opportunities for egg laying.

In Pond 2 it was estimated that up to 150 Great Crested Newts were present, as well as similar numbers of Smooth Newts. The latter were not caught so no checks for Palmate Newts were made.

Population Estimate

Pond 1: Great Crested Newt – small, Smooth Newt – small.
Pond 2: Great Crested Newt – high, Smooth Newt – high.

The results of the trapping sessions and torchlight searches are shown in Appendix 8.

In May and June 2015, six visits were made to Pond 1 to re-survey for newts. Pond 2 was also re-surveyed, as access was granted to allow a closer inspection.

In Pond 1 the surveys revealed a maximum count of 25 Great Crested Newts by torchlight searches, and a maximum catch of nine Great Crested Newts in the bottle traps. A similar size population of Smooth Newts was also present. No eggs were found, but the vegetation was difficult to access due to the depth of water and silt on the bottom of the pond.

Six torchlight searches of Pond 2 revealed a maximum count of two Great Crested Newts, whilst no bottle traps were set due to the very shallow water. No eggs were found.

The water quality in Pond 2 had significantly deteriorated since the previous surveys in 2011, and this was thought to be the cause for the decline in the population size of Great Crested and Smooth Newts.

The results of the trapping sessions and torchlight searches are detailed in the 2015 Updated Great Crested Newt Report dated 1st December 2015 (Ref. 534-CWs-03).

3.3.8 Invertebrates

No important or uncommon invertebrates were observed but a wide range of butterflies were noted during the various visits.

Species included Small Tortoiseshell *Aglais urticae*, Peacock *Inachis io*, Brimstone *Gonepteryx rhamni*, Orange Tip *Anthocharis cardamines*, Common Blue *Polyommatus icarus*, Small Copper *Lycaena phlaeas* and Speckled Wood *Pararge aegeria*.

3.3.9 Other species

No other protected or LBAP species were observed during the site visit, however Rabbit *Oryctolagus cuniculus* burrows were present in large numbers.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Site evaluation

The site supported a variety of habitats, although some of these were considered to be of limited value to wildlife.

The hedgerows and lines of trees provided cover for nesting and foraging birds, whilst some of the mature broadleaved trees contained features suitable for roosting bats, and indeed evidence of a roosting Barn Owl was found at one of these trees.

Excluding the cherries, the remaining orchard trees were too small and generally too intensively managed to support features used by bats and/or birds as roosting and nesting places. The cherries were larger and more mature, with some containing a few cracks and cavities that had potential as bird nesting or bat roosting sites.

The semi-improved grassland areas were rather fragmented and were closely mown, except for the grass margins around the fields in the northwest corner of the site. However, these were relatively poor in their diversity of grasses and wildflowers, and only a few common invertebrates were noted.

The tall ruderal vegetation was attractive to a range of invertebrates, especially butterflies.

The pond on site contained a small to medium population of Great Crested Newts, but the thick blanket weed and dense mass of twigs and branches was certainly reducing the attractiveness of the water body to newts. Furthermore, there were no emergent or floating plants which provided opportunities for egg laying.

The arable fields and root crops had very little interest to wildlife due to their intensive management.

4.2 Possible impacts of proposed work and recommendations

There is likely to be very little impact on wildlife resulting from the change of agricultural practices at the site.

The loss of the commercial orchards is not likely to impact on breeding birds or bats, and the grass areas beneath the trees were relatively poor in floral diversity. However, although no birds were found to be nesting in the orchards in 2010 and 2011, birds could nest at any time in the future.

Since all in-use bird's nests and their contents are protected from damage or destruction, any tree or shrub removal should be undertaken outside the period March to August inclusive. If this time frame cannot be avoided, a close inspection of the trees or shrubs to be removed should be undertaken prior to clearance.

It is also recommended that a Barn Owl box is erected, as although the tree in which it had been roosting is to be retained, it appeared to have been taken over by a Stock Dove.

Work should not be carried out within 5.0 metres of any in-use nest, although this distance could be more depending on the sensitivity of the species.

Excluding a short section of hedge along the northeastern boundary, the internal and external hedgerows and lines of trees are to be retained. As such, all existing bird nesting areas and bat foraging routes will remain.

These vegetated boundaries also provide corridors for newts, especially those with a dry ditch at the base, so the continuity for newt migration between the breeding ponds and surrounding terrestrial habitat will also be maintained.

The section of external hedgerow along the northeastern boundary is to be removed for access. This boundary hedge originally contained a large number of non-native species, along with several trees that were over-mature, dead, dying and potentially hazardous. These were all removed and the remaining native plants are regenerating vigorously.

The Category 2a trees for bats within the curtilage of the site are to be retained, but if they do have to be removed, they should be examined carefully by a licenced bat ecologist prior to felling. If a bat roost or hibernation site is found, a licence from Natural England consenting to the works will be required.

The creation of the camping village for the seasonal workers is not considered to be detrimental to Great Crested Newts in the area, and the accommodation pods may actually provide potential hibernation sites for newts under the concrete blocks. The land between the pods will remain as grassland, and there will be no obstruction to newt movement around the area. Indeed, log piles will be placed strategically around the site to act as refuges for commuting Great Crested Newts.

Furthermore, the installation of the pods will be a gradual process and may take up to three years, so there won't be a sudden or extensive impact on the habitat near the pond.

The irrigation reservoirs will use rainwater harvesting, and will be near to hedgerows, thereby providing extra habitat for the newts. Around the sides of the reservoirs native emergent and aquatic plants will be established.

One of the reservoirs near the existing site entrance to the south will cut through the ditch that runs down toward Pond 2. As this may be allowing newts to commute between ponds, an alternative ditch will be created to provide newts with unrestricted access while construction is going on.

The polytunnels too will be set on grassland, so newts will potentially have access for foraging across the whole site, not just the boundaries, hedgerows and ditches as they have at present.

The pond (No. 1) on site has great potential for enhancement, thus making it much more attractive to amphibians. This will be achieved by cutting back some of the overhanging branches of the trees around the pond, whilst all the twigs and branches will be removed in the winter, when no animals will be present, and as much blanket weed as possible in the summer. The weed should be raked out and left to dry at the edges of the pond so that any invertebrates present can quickly re-enter the water.

This will let in more light and will favour the growth of aquatic plants which newts will be able to lay their eggs on. There will also be an increase in aquatic invertebrates which the newts can eat.

Some broadleaved plants such as Water Forget-me-not *Myosotis scorpioides* and/or Water Speedwell *Veronica anagallis-aquatica* should be planted to provide ideal vegetation for egg laying.

As the newts will be moving along internal boundaries, these are to be retained to maintain the connectivity between the breeding ponds and the surrounding terrestrial habitat.

The site appeared to have low potential for reptiles, and no specific surveys were considered necessary. Instead care will be taken at all times when removing vegetation and topsoil stripping. Any reptiles (or small mammals) disturbed or uncovered will either be caught by hand and relocated to a safe area, or left to vacate the work site in their own time.

Finally, it should be noted that open trenches could potentially trap wildlife, especially if these fill up with water. Escape routes should therefore be provided if trenches cannot be infilled immediately. These can be in the form of branches or boards placed on the bottom of the trench, with their upper ends above ground level and touching the sides, or sloping ends left in trenches.

4.3 Further surveys

If the Category 2a trees have to be removed these should be examined for evidence of bat roosting and/or hibernation.

If any tree or shrub/hedge removal cannot be timed appropriately to avoid the bird nesting period (considered to be March to August inclusive), then further surveys of the trees and/or shrubs to be removed will be necessary.

4.4 Biodiversity enhancements

In addition to the pond 1 enhancements described above, the following additional measures to improve biodiversity on the site will be undertaken.

A variety of boxes will be erected on trees around the site boundaries.

For bats this will include ten Schwegler 2F boxes (Fig. 27).

Schwegler woodcrete boxes have the highest rates of occupation of all box types. The 75% wood sawdust, concrete and clay mixture allows natural respiration, stable temperature, and durability.

They are extremely long lasting and rot- and predator-proof, and will hang from a tree branch near the trunk, or can be fixed to a trunk. The 2F is the most popular general purpose box, particularly attractive to the smaller British bats. It has a simple design with a narrow entrance slit on the front.

Fig. 27 Schwegler 2F bat box

All the boxes will be at least 5.0 m above ground level and clear of any overhanging branches or wires. They will face anywhere from SE to SW to provide differing aspects to suit different weather conditions.

For birds it is proposed to erect five each of two types of Schwegler tit nest boxes: 1B (26 mm) and 1B (32 mm) and four Schwegler 2H open-fronted boxes. These are shown in Fig. 28 below.

Fig. 28 Schwegler bird nest boxes 1B (26 mm), 2H and 1B (32 mm)

Woodcrete Nest Boxes come with a 25 year guarantee against rot, weather and natural damage.

The 1B is available with a 26 mm hole for the tit *Parus spp* family and a 32 mm hole suitable for sparrows *Passer spp*.

The 2H is open-fronted for a variety of species such as Robin *Erithacus rubecula*, Wren *Troglodytes troglodytes*, Spotted Flycatcher *Muscicapa striolatum* and Pied Wagtail *Motacilla alba*.

A Barn Owl box will also be provided (Fig. 29). This type of box is specifically designed for Barn Owls and provides ideal roosting, as well as nesting, conditions.

Fig. 29 Barn Owl nest box

It will be erected in one of the mature trees along the western boundary and will face anywhere from NE to SE at a height of 3-5 m off the ground. Any overhanging or obstructing branches/twigs will be removed to provide free flight to the entrance.

The surface water balancing ponds/irrigation reservoirs will contain water following rainfall, and may tend to dry out during extensive warm periods. These ephemeral wetland features will be functional but will attract wildlife such as birds, dragonflies, foraging bats, and a wide variety of invertebrates.

Native species planting around the edge and the bottom of the ponds will include emergents such as Common Reed *Phragmites australis*, Bog Bean *Menyanthes trifoliata*, Arrowhead *Sagittaria sagittifolia*, Common Water Crowfoot *Ranunculus aquatilis*, and Water Speedwell *Veronica anagallis-aquatica*.

The grassland around the ponds will be enriched with native wildflowers typical of neutral soils.

Additionally, any new tree planting will use native broadleaved species, these selected and positioned to take account of the spatial constraints of the site.

Although no further surveys are considered necessary, to protect amphibians which may venture onto the site, a briefing to contractors will be made prior to works commencing. This will include advice on the dismantling and lifting by hand of any potential refugia, care taken during vegetation removal and excavations of the topsoil, and storage of building materials on pallets and/or bare ground.

If any amphibians (or small mammals) are encountered they will be carefully captured and released nearby, or allowed to move out of the area on their own accord.

5. REFERENCES

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APPENDICES

Appendix 1: Phase 1 Habitat Survey Map

Appendix 2: Target Notes

Appendix 3: Designated sites within 2 km radius of Biddlestone Orchards

Appendix 4: Protected species within 2 km radius of Biddlestone Orchards

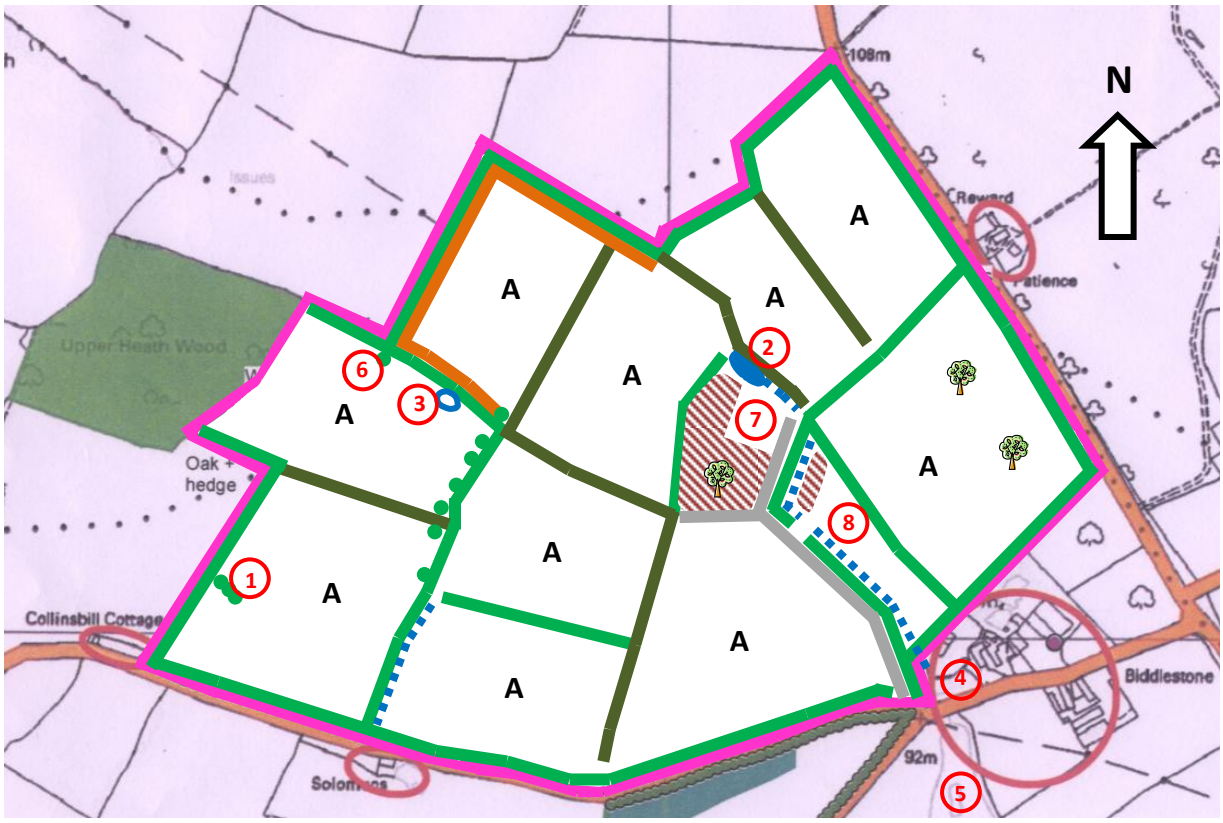
Appendix 5: Plant species list

Appendix 6: Bird species list

Appendix 7: Relevant legislation

Appendix 8: 2011 Great Crested Newt survey results

Appendix 1: Phase 1 Habitat Survey Map



Not to scale

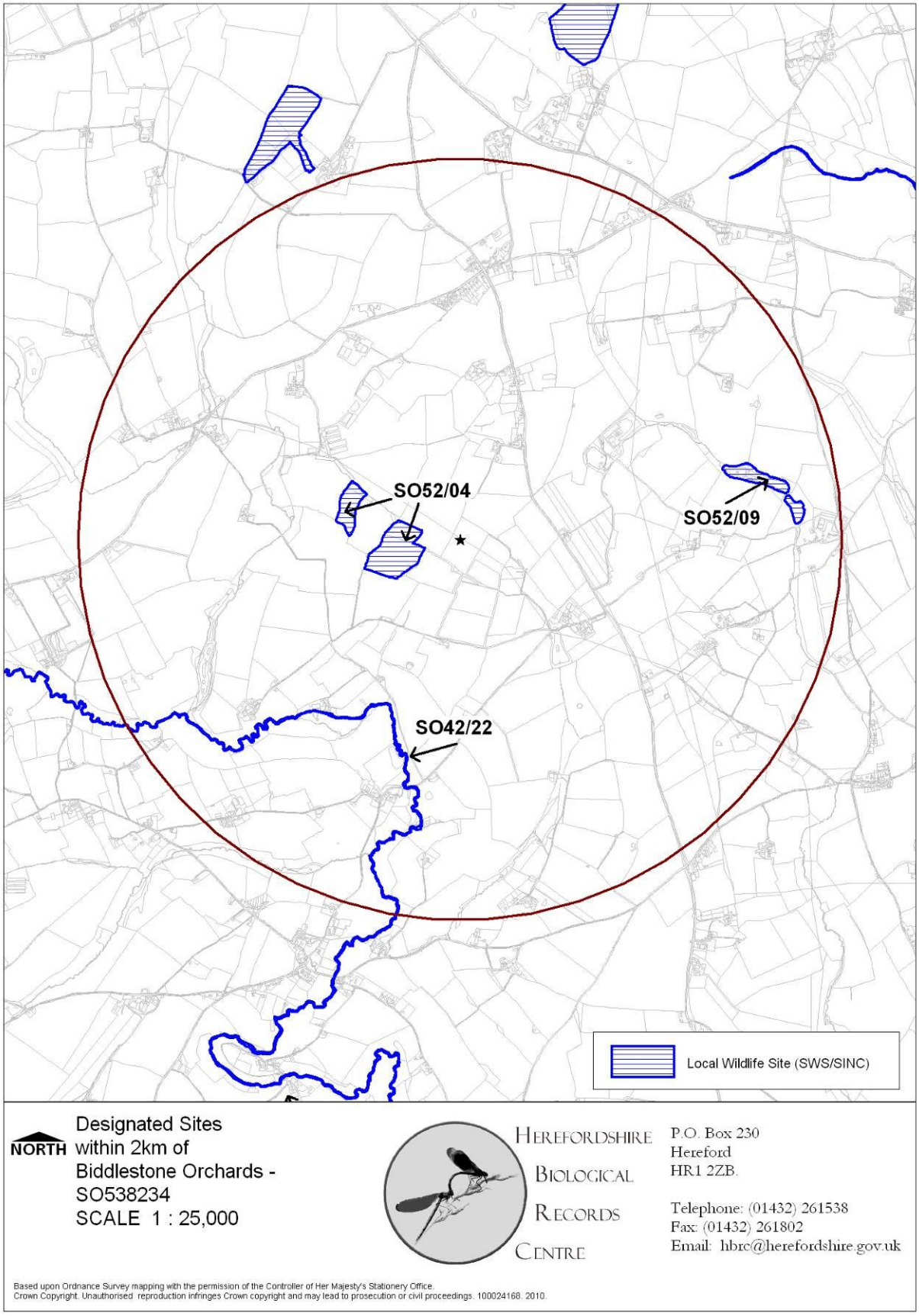
Legend

Survey boundary	Semi-improved grassland	A Arable
Orchard	Dry ditch	Hedge with trees
Scattered broadleaved trees	Standing water	Track
Line of trees	Tall ruderal vegetation	Target note

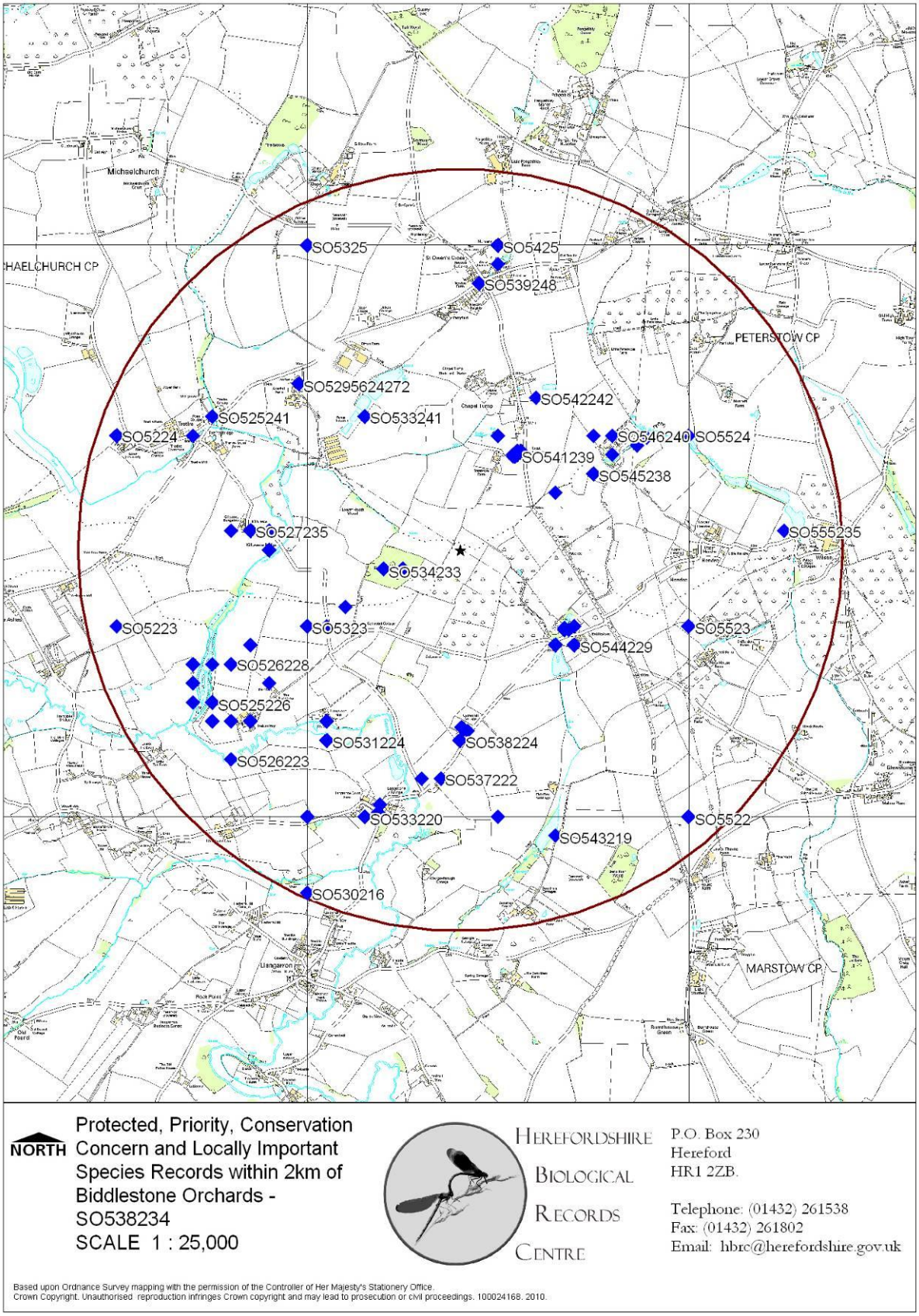
Appendix 2: Target Notes

Target Number	Notes
1	Line of four mature Pedunculate Oaks
2	Pond with Great Crested Newts
3	Dry pond
4	Shallow pond in village with Great Crested Newts
5	Fishing lake
6	Mature Pedunculate Oak with high bat potential
7	Caravans
8	Polytunnels

Appendix 3: Designated sites within 2 km radius of Biddlestone Orchards



Appendix 4: Protected species within 2 km radius of Biddlestone Orchards



Appendix 5: Plant species list

Latin name	Common name
Cuprocyparis leylandii	Leyland Cypress
Salix caprea	Goat Willow
Salix fragilis	Crack Willow
Alnus glutinosa	Alder
Corylus avellana	Hazel
Betula pendula	Silver Birch
Quercus robur	Pedunculate Oak
Acer campestre	Field Maple
Fraxinus excelsior	Ash
Ulmus glabra	Wych Elm
Malus domestica	Orchard Apple
Prunus avium	Wild Cherry
Prunus spinosa	Blackthorn
Crataegus monogyna	Hawthorn
Sambucus nigra	Elder
Ilex aquifolium	Holly
Clematis vitalba	Wild Clematis
Urtica dioica	Common Nettle
Rumex obtusifolius	Broad-leaved Dock
Rumex crispus	Curled Dock
Stellaria media	Common Chickweed
Cerastium fontanum	Common Mouse-ear
Silene dioica	Red Campion
Ranunculus repens	Creeping Buttercup
Papaver rhoeas	Common Poppy
Cardamine hirsuta	Hairy Bittercress
Capsella bursa-pastoris	Shepherd' Purse
Alliaria petiolata	Garlic Mustard
Rosa canina	Dog Rose
Rubus fruticosus	Bramble

Medicago lupulina	Black Medick
Vicia sativa	Common Vetch
Vicia hirsuta	Hairy Tare
Lathyrus pratensis	Meadow Vetchling
Trifolium pratense	Red Clover
Trifolium repens	White Clover
Geranium dissectum	Cut-leaved Cranesbill
Epilobium angustifolium	Rosebay Willowherb
Anthriscus sylvestris	Cow Parsley
Heracleum sphondylium	Hogweed
Anagallis arvensis	Scarlet Pimpernel
Convolvulus arvensis	Field Bindweed
Calystegia sepium	Hedge Bindweed
Galium aparine	Common Cleavers
Myosotis arvensis	Field Forget-me-not
Lamium album	White Dead-nettle
Lamium purpureum	Red Dead-nettle
Veronica hederifolia	Ivy-leaved Speedwell
Euphrasia sp.	Eyebright species
Plantago major	Greater Plantain
Dipsacus fullonum	Teasel
Bellis perennis	Daisy
Tripleurospermum inodorum	Scentless Mayweed
Leucanthemum vulgare	Ox-eye Daisy
Artemisia vulgaris	Mugwort
Tussilago farfara	Coltsfoot
Senecio jacobaea	Ragwort
Senecio vulgaris	Groundsel
Cirsium vulgare	Spear Thistle
Cirsium arvense	Creeping Thistle
Sonchus asper	Prickly Sowthistle
Taraxacum Section Vulgaria	Dandelion

Lapsana communis	Nipplewort
Juncus effusus	Soft Rush
Festuca rubra	Creeping Fescue
Lolium perenne	Perennial Ryegrass
Poa annua	Annual Meadow-grass
Poa pratensis	Smooth Meadow-grass
Dactylis glomerata	Cocksfoot
Bromus ramosus	Hairy Brome
Bromus hordeaceus	Soft Brome
Arrhenatherum elatius	False Oatgrass
Deschampsia cespitosa	Tufted Hair-grass
Alopecurus pratensis	Meadow Foxtail
Holcus mollis	Creeping Soft-grass
Equisetum arvense	Common Horsetail

Appendix 6: Bird species list

Common name	**Latin name**
Buzzard	*Buteo buteo*
Woodpigeon	*Columba palumbus*
Wren	*Troglodytes troglodytes*
Robin	*Erithacus rubecula*
Blackbird	*Turdus merula*
Blackcap	*Sylvia atricapilla*
Blue Tit	*Parus caeruleus*
Great Tit	*Parus major*
Long-tailed Tit	*Aegithalos caudatus*
Magpie	*Pica pica*
Chaffinch	*Fringilla coelebs*
Greenfinch	*Carduelis chloris*

Appendix 7: Relevant legislation

7.1 – Birds

In Britain, all wild birds, their nests and eggs are protected under the Wildlife & Countryside Act 1981. There are penalties for:

- *Killing, injuring or capturing them, or attempting any of these;*
- *Taking or damaging the nest whilst in use;*
- *Taking or destroying the eggs.*

7.2 – Bats

In England, Scotland and Wales, all bat species are fully protected under the Wildlife and Countryside Act 1981 (WCA) (as amended), through inclusion in Schedule 5. In England and Wales this Act has been amended by the Countryside and Rights of Way Act 2000 (CRoW), which adds an extra offence, makes species offences arrestable, increases the time limits for some prosecutions, and increases penalties.

All bats are also included in Schedule 2 of the Conservation (Natural Habitats, & c.) Regulations 1994, (or Northern Ireland 1995) (the Habitats Regulations), which defines 'European protected species of animals'.

The above legislation can be summarised thus (Mitchell-Jones and McLeish, 2004):

- *Intentionally or deliberately kill, injure or capture (or take) bats;*
- *Deliberately disturb bats (whether in a roost or not;*
- *Recklessly disturb roosting bats or obstruct access to their roosts;*
- *Damage or destroy roosts;*
- *Possess or transport a bat or any part of a part of a bat, unless acquired legally;*
- *Sell (or offer for sale) or exchange bats, or parts of bats.*

The word 'roost' is not used in the legislation, but is used here for simplicity. The actual wording is 'any structure or place which any wild animal…uses for shelter or protection' (WCA), or 'breeding site or resting place' (Habitats Regulations).

As bats generally have both a winter and a summer roost, the legislation is clear that all roosts are protected whether bats are in residence at the time or not.

7.3 – Great Crested Newts

Great Crested Newts are protected under Schedule 5 of the Wildlife & Countryside Act (1981) as amended, and Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations 1994 (Regulation 38). As a result of their rarity across Europe, they are also protected under Annexes IIa and IVa of the Habitats and Species Directive, and under the Berne Convention (the Convention on the Conservation of European Wildlife and Natural Habitats).

The above legislation can be summarised thus (Langton et al, 2001):

- Intentionally or deliberately capture or kill, or intentionally injure Great Crested Newts;
- Deliberately disturb Great Crested Newts or intentionally or recklessly disturb them in a place used for shelter or protection;
- Damage or destroy a breeding or resting place;
- Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection;
- Possess a Great Crested Newt, or any part of it, unless acquired lawfully;
- Sell, barter, exchange or offer for sale Great Crested Newts or parts of them.

Appendix 8: 2011 Great Crested Newt survey results

POND 1				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
					Torch power: 1 million candle										larvae found? (any method)
No. of survey visits to this pond:			6		GCN = Great Crested Newt SN = Smooth Newt			GCN = Great Crested Newt SN = Smooth Newt							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Traps Used												
28th April 2011	14°C	50%	16	Adult totals:	**3 GCN**	**5 GCN**	**0**	N/A		0	N/A	N/A	N/A	No	No
(2) Date:	Air temp	Veg cover	Traps Used												
1st May 2011	14°C	50%	16	Adult totals:	**2 GCN**	**2 GCN**	**0**	1♀ GCN		0	N/A	N/A	N/A	No	No
(3) Date:	Air temp	Veg cover	Traps Used												
6th May 2011	12.5°C	75%	16	Adult totals:	**3 GCN**	**1 GCN**	**0**	8♂ 2♀ GCN 1♂ SN		2 GCN	N/A	N/A	N/A	No	No
(4) Date:	Air temp	Veg cover	Traps Used												
14th May 2011	11°C	75%	16	Adult totals:	**0**	**0**	**0**	2 ♂ 2♀ SN		0	N/A	N/A	N/A	No	No
(5) Date:	Air temp	Veg cover	Traps Used												
18th May 2011	16°C	90%	16	Adult totals:	**1 GCN**	**1 GCN**	**0**	3♂ 2♀ GCN		0	N/A	N/A	N/A	No	No
(6) Date:	Air temp	Veg cover	Traps Used												
26th May 2011	13°C	90%	16	Adult totals:	**0**	**0**	**0**	2♂ GCN		0	N/A	N/A	N/A	No	No
Peak adult count for this pond in any one visit (by torch, trap or net):								**12**							
Comments and constraints:	Blanket weed became very thick as season progressed.														

POND 2	Method:	Torch	Bottle-trap	Net	Egg search	Larvae
		Torch power: 1 million candle			eggs	larvae found?

No. of survey visits to this pond:			6		GCN = Great Crested Newt SN = Smooth Newt			GCN = Great Crested Newt SN = Smooth Newt						found?	(any method)
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Traps Used												
28th April 2011	14°C	50%	0	Adult totals:	**75 GCN 75 SN**	**75 GCN 75 SN**	**0**	N/A		N/A	N/A	N/A	N/A	N/A	N/A
(2) Date:	Air temp	Veg cover	Traps Used												
1st May 2011	14°C	50%	0	Adult totals:	**75 GCN 75 SN**	**75 GCN 75 SN**	**0**	N/A		N/A	N/A	N/A	N/A	N/A	N/A
(3) Date:	Air temp	Veg cover	Traps Used												
6th May 2011	12.5°C	60%	0	Adult totals:	**50 GCN 50 SN**	**50 GCN 50 SN**	**0**	N/A		N/A	N/A	N/A	N/A	N/A	N/A
(4) Date:	Air temp	Veg cover	Traps Used												
14th May 2011	11°C	75%	0	Adult totals:	**50 GCN 50 SN**	**50 GCN 50 SN**	**0**	N/A		N/A	N/A	N/A	N/A	N/A	N/A
(5) Date:	Air temp	Veg cover	Traps Used												
18th May 2011	16°C	80%	0	Adult totals:	**40 GCN 40 SN**	**40 GCN 40 SN**	**0**	N/A		N/A	N/A	N/A	N/A	N/A	N/A
(6) Date:	Air temp	Veg cover	Traps Used												
26th May 2011	13°C	80%	0	Adult totals:	**40 GCN 30 SN**	**30 GCN 30 SN**	**0**	N/A		N/A	N/A	N/A	N/A	N/A	N/A
Peak adult count for this pond in any one visit (by torch, trap or net):								**150 GCN & 150 SN**							
Comments and constraints:			Bottle trapping was not used as the depth of water in both pond was insufficient to allow correct trap deployment. Numbers are estimate only.												

Cotswold Wildlife Surveys Limited

Company Reg. No. 6864285 (England & Wales)

Andy Warren BSc (Hons), MA (LM), Tech Cert (Arbor A), MCIEEM, TechArborA
Withy Way, Charingworth, Chipping Campden, Gloucestershire, GL55 6NU

Tel: 01386 593056/07879 848449

andy@cotswoldwildlifesurveys.co.uk

Biddlestone Orchards, Llangarron – 2016 Updated Extended Phase 1 Habitat Survey

To: F M Green

Report Number: 534-CWS-04

Version: 01

Date: 27th September 2016