Site adjacent to Maryland, Much Marcle

Preliminary

Ecology Assessment

For Client:

Rosanna Pain DJD Architects

June 2017

1.0 Introduction

1.1 Brief

Dr. Stefan Bodnar MCIEEM was commissioned to conduct an Extended Phase 1 habitat survey of an area of land known as land by Maryland, Much Marcle.

A small section of the site is proposed for development, including new-build residential development. See below:



The survey comprised the following:

- An extended Phase 1 habitat survey involving a walkover of the site to record habitat types and dominant vegetation, including any invasive species, and a reconnaissance survey for evidence of protected fauna or habitats capable of supporting such species;
- An assessment of the potential ecological constraints to the proposed works at the site and recommendations for further survey, avoidance, mitigation and enhancement where appropriate.

This assessment was carried out by Dr. Stefan Bodnar MCIEEM, Principal Ecologist who meets all criteria for a 'suitably qualified ecologist' as defined in the Code for Sustainable Homes (CfSH) Manual. Stefan is a member of the Chartered Institute of Ecology and Environmental

Management (CIEEM) and follows the Institute's code of professional conduct when undertaking ecological work.

1.2 Site Location

The development area is located at Much Marcle. Aerial photographs, below, shows the area concerned. A plan showing the area concerned is also displayed below (red line boundary). Images below show details of the site, which comprises mainly semi-improved grassland with orchard tree remnants. There are boundary native hedgerows. It is set within the village of Much Marcle, Herefordshire.

An aerial photo is provided showing the landscape context of the proposed development.





2.0 Survey Methods

2.1 Desk Study

Information was gathered from a number of sources including Nature on the Web (Natural England Web-site), the National Biodiversity Network (NBN) and Shropshire Ecological Data Network (SEDN) plus a range of other sources of web-based data. The data search covers the following areas:

- Species of particular note
- Protected sites, including Local Nature Reserves
- Protected species (badger, slow worm, great crested newts, and bats)

2.2 Field Study

2.2.1 Vegetation and Habitats

The survey was undertaken in good weather on 15th June 2017. The weather conditions during the survey were dry and sunny with no precipitation. The vegetation and habitat types within the site were categorised in accordance with the standard Phase 1 Habitat assessment methodology (Joint Nature Conservation Committee, 2003). Dominant and conspicuous plant species were recorded for each habitat and other features of interest. Following completion of the survey a colour coded habitat plan was digitised showing the extent and distribution of the different habitat types present on the site.

In addition to general habitat classification and mapping, a botanical species list was also compiled which is listed at Appendix 2.

2.2.2 **Fauna**

During the survey, emphasis was placed on searching for evidence of and potential of habitats and features supporting protected or notable species, especially those listed under the Conservation of Habitats and Species Regulations 2010, the Wildlife & Countryside Act 1981 (as amended), the List of Species & Habitats of Principle Importance for Conservation of Biological Diversity in Wales (Wales Biodiversity Partnership, 2007) and in local Biodiversity Action Plans.

The range of methods used were as follows:

Bats

The trees within the site were appraised for their potential suitability to support breeding, resting and hibernating bats in accordance with survey methods documented in the Bat

Surveys: Good Practice Guidelines (Bat Conservation Trust 2012). Features of medium and high potential for bats were searched for signs of use by bats, such as droppings, urine staining and scratches around entrance holes etc.

A visual inspection of the trees from ground level with the aid of binoculars was undertaken to search for evidence of actual bats as well as signs of bats (droppings, feeding remains, urine staining, scratch marks, noise and the remains of dead bats etc.). In addition, the trees were assessed for the presence of features likely to be attractive to roosting bats, such as cavities or rot holes in the trunk or branches, splits in the timber, delaminating bark, deep bark crevices, dead branches and dense ivy cover etc. In accordance with the methodology outlined in the Bat Conservation Trust's Bat Surveys: Good Practice Guidelines (2016) trees were assigned to the following categories:

- Known or Confirmed Roost signs of bats (droppings, etc) or actual bats recorded; or previous records of bats in tree
- High (Category 1*) trees with multiple, highly suitable features capable of supporting large roosts
- Medium (Category 1) a tree with definite bat potential; fewer features than category 1* or potential for single bats
- Low (Category 2) No obvious potential, although tree of size and age that elevated surveys may result in cracks/crevices being found; or tree has some features which have limited potential to support bats
- Nil (Category 3) no potential to support bats

The site was also assessed for potential bat foraging areas and commuting routes. within the site are a number of stable type buildings, these were also assessed for bat roosting and breeding bird potential.

Features of medium and high potential for bats were searched for signs of use by bats, such as droppings, urine staining and scratches around entrance holes etc. The site was also assessed for actual and potential bat foraging areas and commuting routes.

Reptiles

The site was assessed for its suitability to support reptiles based upon the abundance of suitable habitats such as structurally diverse habitats, hedgerows, scrub, rough grassland, wood piles, rubble, banks and compost heaps etc. The site was assessed with respect to its potential for use for hibernation and spring/summer use based on guidance provided in the Herpetofauna Workers' Manual (Joint Nature Conservation Committee, 2003) and the Reptile Management Handbook (Edgar, Foster & Baker 2011).

Badgers

The whole site was searched systematically, with particular attention being paid to features likely to support badger setts (e.g. earth embankments, wooded copses etc.). The location of all badger signs such as runs, dung pits, prints, hair, foraging snuffle holes found during the survey were mapped and all setts characterised as either main, annex, subsidiary or outliers in accordance with guidance given in Surveying Badgers (Harris, Cresswell & Jefferies, 1988).

Birds

All birds observed during the field survey were recorded, in addition to features capable of supporting nesting birds (e.g. trees, hedgerows, buildings, bramble beds, ruderal vegetation and rough grassland etc). The sites was also assessed for its actual and potential suitability to support Schedule 1 and Biodiversity Action Plan priority species.

Other Species

The site was also assessed for its actual and potential suitability to support other protected or notable fauna in accordance with the Guidelines for Preliminary Ecological Appraisal (Chartered Institute of Ecology and Environmental Management, 2013).

2.2.3 Constraints of Survey

Owing to the time of year the initial survey took place it can be considered to provide a reasonable plant list. This survey noted the habitat types on the site, and the dominant vegetation at the time of the survey, which is likely to be constant and a fair reflection of the habitat quality present.

3.0 Designated Sites of Ecological Importance

3.1 Statutory Designations

The proposed development site does not contain or lie adjacent to any other statutory designated conservation sites such as Special Areas of Conservation (SAC), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) or Local Nature Reserves (LNRs). The site lies within a Nitrate Vulnerable Zone and within a SSSI impact zone. The nearest such sites are listed in the table below:

Sites of Special Scientific Interest SSSIs

Name	Distance (approximately)
Hall Wood SSSI	1.2 km NE



In terms of other designations, the site is shown to lie in proximity to the Conservation area of Much Marcle.



The site lies outside Flood Zones and at some distances from both Special Wildlife Sites and Minerals Sites. (see below)



Historical Evidence

The area is a derelict traditional orchard. a large proportion of the trees have died or been removed and a number of others are over-mature and in the decline phase. The use of the area for horse grazing is contributing to the continued decline of the orchard. Information is presented below on the inventory of traditional orchards in Herefordshire, which this orchard forms one of. Traditional orchards are part of the UK and Local Biodiversity Action Plan for Herefordshire (now contained within S41 Habitats of the NERC Act (2006), listed as a priority habitat. Historically the area has a tradition of Cider and Perry production related to these orchards.

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES		
No.	Area (Ha)						No	Area (Ha)	
3360	2481.5	43	92	4	82	14	446	659.12	

Table 25 Information derived from the inventory for traditional orchards in Herefordshire



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6). Herefordshire Council is active in promoting orchard conservation and management and organises a fruit tree initiative to help conserve Herefordshire's orchards and traditional varieties. Other groups are also interested in fruit varieties and biodiversity (Appendix 7). There are known populations of noble chafer in this county.

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Figure 22 Distribution of traditional orchards in Herefordshire

Historic maps accessed from 1903 show that the site was orchard in 1903 and possibly some of the present trees were part of this very orchard. (There is a nearby site in Much Marcle with orchard trees dating from the early 18th Century). see images below:



Much Marcle Map 1903.

In relation to protected species the following were recorded from available web-based sources, and are presented here with the approximate distances of the nearest record. Where two records are presented these are different records available from different sources.

3.2 Protected species records:

Bat Species

Species (Latin Name)	Common Name	Approximate distance of nearest record from the survey site (km)
Myotis daubentonii	Daubenton's bat	10 km N
Pipistrellus pipistrellus	Common pipistrelle	2km NE
Pipistrellus pygmaeus	Soprano pipistrelle	2km N
Plecotus auritus	Brown long eared bat	6km N
Rhinolophus hipposideros	Lesser Horseshoe	Within 2 km
Rhinolophus ferroequinum	Greater horseshoe	Within 2 km

Selected Other Species

Species (Latin Name)	Common Name	Approximate distance of nearest record from the survey site (km)
Triturus cristatus	Great Crested newt	5 km NE
Meles meles	Badger	Within 2 km
Lutra lutra	Otter	Within 2 km
Muscardinus avenellarius	Dormouse	Within 2 km
Tyto alba	Barn owl	Within 5 km
Gnorimus nobilis	Noble chafer	Within 5 km

Interpretation of available biological data

There are several protected species recorded recently within 2 km, including a number of bat species, badger and great crested newt and dormouse are recorded within 5km distance from the site. The lack of records is partly due to the lack of recording in this instance as many of the nearby habitats present would be expected to support a number of these species and possibly other too.

4.0 Survey Results

4.1 Habitats

The following habitats and ecological features were recorded within the site:

Semi-improved grassland

The majority of the 'green' area of the site is semi-improved grassland, with a mixture of grasses including, Annual meadowgrass *Poa annua*, Rough meadowgrass *Poa trivialis* and Yorkshire fog *Holcus lanatus*. Whilst this grass mixture is typical of improved swards, the other constituent species indicate a semi-improved character: these include species such as selfheal *Prunella vulgaris*, Meadow buttercup *Ranunculus acris*, Common stitchwort *Stellaria sp.*, Birdsfoot trefoil *Lotus corniculatus* In dunging areas, there are localised patches of tall herb and enriched sward, with species indicating more enrichment such as such as stinging nettle *Urtica dioica*, cocksfoot *Dactylis glomerata*, daisy *Bellis perennis*, creeping buttercup *Ranunculus repens* and dandelion, *Taraxacum officinalis agg.*. The grassland is currently horse grazed.

Native Hedgerow

Mainly formed of hawthorn (*Crategus monogyna*), elder (*Sambucus nigra*) and Sycamore (*Acer pseudoplatanus*) Other constituents blackthorn *Prunus spinosa*, hazel *Corylus avellana*, and bramble *Rubus fruticosus*. A number of in-hedge trees, mainly ash *Fraxinus excelsior*. a small section bordering 'Maryland' which is formed of elm *Ulmus sp.*, honeysuckle *Lonicera periclymenum*, and field rose *Rosa arvensis*.

Traditional orchard

Having considered the definitions related to the UK Habitat Action Plan, (refer to Traditional Orchard Project in England, Natural England, 2011), it can be safely concluded that part of the site constitutes a traditional orchard consisting of mature apple trees (*Malus domestica*) and mostly pear trees (*Pyrus communis*), and as such is a UK biodiversity habitat priority as well as a County BAP Habitat. Refer also to Arboricultural survey by Dr. Stefan Bodnar (2017). The trees are heavily covered in Mistletoe (*Viscum album*).

Ditch course

The ditch contains a number of herb species not found on the rest of the site including meadowsweet *Filipendula ulmaria*, march thistle *Cirsium palustre*, figwort *Scrophularia auriculata*, and watercress *Nasturtium officinale*.

Parts of the ditch are being colonised by ash saplings with a small number of coppice hazel present.

A full species list of vascular plants is included within Appendix 1. The list of Vascular plant species was recorded by Dr. S. Bodnar and L. Sutherland on 15th June 2017. Photographs of the site are given in Appendix 2.

4.2 Protected and Notable Species

4.2.1 Bats

There are 18 species of bat found in the UK, 17 of which are known to breed in the UK. All are small, nocturnal, flying, insectivorous mammals that are under considerable conservation threat and many having undergone massive population declines over the last century. Some species, such as pipistrelle bats (Pipistrellus sp) still remain relatively common and widespread in the UK, while others, such as greater horseshoe bats (Rhinolophus ferrumequinum), have an extremely restricted distribution. All species of bats and their roosting sites are afforded full protection under both UK and European legislation and are designated as 'European protected species'.

It is possible for the site to have some potential as bat foraging and commuting site. The mature/over-mature orchard trees contained a considerable number of cavities and holes with potential to support roosting bats.

Building evaluation for bats:

These are stable buildings, Breezeblock single storey construction, corrugated metal roofs, wooden soffits: generally intact. The tenant of the land reports finding a single common pipistrelle bat behind a board on the fascia of the building, most likely a temporary roost feature. Generally however, these buildings are well lit and with no cavities or roof-space are low opportunity in terms of bat roost potential.

4.2.2 Badgers and other mammals

Badgers (Meles meles) are protected in England and Wales under the Protection of Badgers Act 1992. Protection applies both to the animal itself and to its nesting burrows (setts), and current interpretation of the Act also confers some protection to key foraging areas. Badgers remain comparatively widespread and common throughout the UK.

There is no evidence of foraging badger on the site and it can be confirmed that there are no badger setts within the site or within 30m of the site edges.

The presence of other specially protected mammals, such as otter, was assessed as extremely unlikely due to the lack of suitable habitat for such species and the lack of any signs for this spcies. In terms of dormice, the situation is less clear, though, the minimal nature of the development and minimal impact on hedgerows on site (which would be the preferred habitat would lead to the conslusion that further surveys in respect of this species are not justified in this instance.

4.2.3 Birds

The Wildlife and Countryside Act 1981 (as amended) makes it an offence (with certain limited exceptions) to intentionally kill, injure or take any wild bird, or to damage, take or destroy the nest of any wild bird whilst that nest is being built or in use, or to take or destroy its eggs. Furthermore, the Act affords additional protection to specific species of birds listed in Schedule 1 of the Act. In respect of these species, it is unlawful to intentionally or recklessly disturb such a bird whilst it is nest-building or is in, on or near a nest containing eggs or young; or to disturb their dependent young. Following recent revisions, fifty-nine species are listed on the UKBAP.

The following species were recorded on-site during the visit:

Bird Species:	Latin name:
Blackbird	Turdus merula
Buzzard	Buteo buteo
Blue tit	Cyanistes caeruleus
Goldfinch	Carduelis carduelis
Great tit	Parus major
House sparrow	Passer domesticus
Green woodpecker	Picis viridis
Collared dove	Streptopelia decaocto

Mistle thrush	Turdus viscivorus
Jackdaw	Corvus monedula
Carrion crow	Corvus corone
Magpie	Pica pica
Song thrush	Turdus philemelos
	-
Robin	Erithacus rubecula
Starling	Sturnus vulgaris
Woodpigeon	Columba palumbus
Lesser black backed gull	Larus fuscus
Swallow	Hirundo rustica

A number of common birds were actually recorded on the site itself, and a number of other species were noted within the surrounding areas and habitats and these are likely to forage within the site. Some of the trees and hedgerows within the survey site could provide nesting habitat for a number of common bird species. there was evidence of swallow (*Hirundo rustica*) nesting within the stable buildings (2 nests).

It might also be appropriate to assume that there could be species such chaffinch (*Fringilla coelebs*), greenfinch (*Carduelis chloris*), and long-tailed tit (*Aegithalos caudatus*) could use the site for foraging.

4.2.4 Great Crested Newt

The great crested newt (*Triturus cristatus*) is one of the two rarest amphibian species in Britain. It is primarily a terrestrial animal, spending much of its life on land, but returning to the water to breed. Great crested newts will often return to breed in the same waterbody where they were spawned. In addition, they are highly opportunistic and will also colonise suitable new waterbodies rapidly. Great Crested Newt is a 'European protected species' afforded full protection under both UK and European legislation. This protection extends to the habitats which support it. The habitats within 500m of a breeding pond are generally considered to be protected by the legislation. The great crested newt is a priority species and subject to its own Biodiversity Action Plan.

The site is of moderate biological quality for this species. There are no suitable breeding habitats for great crested newt (*Triturus cristatus*) even though the data search reveals the nearest know record is 2 km distant. On this basis, it is considered possible that this species would be present and there is a need for further surveys in respect of this species, specifically a Habitat Suitability Assessment, which dependant on the findings, may require further evaluations to be made.

4.2.5 **Reptiles**

There are four widespread species of British reptile comprising grass snake (Natrix natrix), slow-worm (Anguis fragilis), adder (Vipera berus) and common lizard (Zootoca vivipara). These animals are protected under the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000.

They are given so called 'partial protection', which prohibits the deliberate killing or injury of individuals. The habitats of common reptiles are not specifically protected.

In terms of reptiles, the onsite habitats show poor suitability with the exception of the ditch course which will be unaffected by the development proposal. The relative size of the site, and the lack of any nearby records indicate that the presence of these species is unlikely or if present, are unlikely to be negatively impacted. No further surveys are recommended.

4.2.6 **Invertebrates**

The presence of traditional orchard habitat indicates the possible presence of the species noble chafer *Gnorimus nobilis*. Noble chafers are a UK BAP species (now contained within S41 of the NERC Act) and are nationally vulnerable.

5.0 Discussion

5.1 Conservation Context

The site basically consists of five elements (See section 3):

- Traditional orchard (National BAP Habitat)
- Semi-improved grassland (provisional evaluation only)
- Native hedgerow
- Ditch

The value of the site in terms of ecological value to wildlife is generally moderate, with the traditional orchard being of high wildlife value. Note information previously from the inventory of traditional orchards in Herefordshire, part of the Traditional Orchards Project in England, 2011, Natural England.

5.1.1 Discussion within landscape context

There are high quality ecological features within the site and all of these will be lost to accommodate the scheme. However the scheme is restricted, and involves the loss of a small area of the orchard to built development/garden, a very short section of hedgerow and at least 7 Orchard trees. most of the site including the stables area, will be unaffected by the proposed works. There is potential for biodiversity improvement and mitigation, in restoring other sections of the orchard under the ownership of the client which could offset this loss

5.2 Conclusion

This Phase 1 Ecology Report confirms that the Construction Zone is of 'moderate to highecological value', the on-site vegetation consisting mainly of semi-improved grassland and traditional orchard.

- There are no Statutory or Non-Statutory Designated Nature Conservation Sites within the site or that will be impacted by this development. There are existing features of ecological value within the development sites that have potential to be lost or negatively impacted upon by the development.
- From the Biological Data Search and site walkover survey, no protected species were recorded within the site. No badger setts were identified within the development area at the time of survey and it is unlikely that badgers could utilise the site for foraging. The close proximity of some bat records and the trees within/adjacent to the site indicate that these elements may have some limited use for bat foraging and commuting. Some of the trees within the development area (which are planned for removal) were categorized as having potential to support roosting bats.
- No evidence of any other protected species was recorded during the site survey. However, the trees and hedgerows within the site have potential for supporting breeding birds. It is recommended that any site clearance involving these features is undertaken outside of the bird breeding season (mid March to mid August). If site clearance is undertaken during these months, a suitably qualified and experienced ecologist should be employed to ascertain the presence of any breeding birds within the site.

6.0 Recommendations

It is important that this proposed development should demonstrate no net loss of **biodiversity from the site.** This is a duty placed on Local Authorities in the Natural Environment and Rural Communities Act 2006, Section 40. There are requirements noted for this under the National Planning Policy Framework (2012) which refers to compensation/ mitigation.

This section states how the negative impacts of development can be reduced, though the nett result of the development is likely to be a significant loss of biodiversity.

6.1 Key Recommendations

Further biological surveys

- **Invertebrate survey**: No invertebrate survey has been undertaken on the site. It is recommended, that in light of the presence of potential Biodiversity Action Plan species, that have not been evaluated, a further invertebrate survey is undertaken.
- **Bat roost evaluation:** it is recommended that the mature/over-mature orchard trees are evaluated for their potential to harbour bat roosts.
- **Great Crested Newt:** it is considered possible that this species would be present and there is a need for further surveys in respect of this species, specifically a Habitat Suitability Assessment, which dependant on the findings, may require further evaluations to be made.

Protection of Wildlife Features

There are high quality ecological features within the site, particularly mature orchard trees a small number of which will be lost to accommodate the scheme. The retained on-site trees and those on the site boundary should be retained and protected through the erection of tree root protection zones/barrier fencing in accordance with British Standard BS5837 (2012)Trees in Relation to Design, Demolition and Construction – Recommendations. There is potential for limited biodiversity mitigation.

Bird Boxes

Bird nesting opportunities should be enhanced through the provision of an artificial bird boxes at the rear of the properties. The nest boxes should be three house sparrow terrace boxes and three swift nest boxes installed as high as possible beneath the eaves of the two storey new buildings. Detailed specifications are provided in Appendix 3.

Bat Boxes

Bat roosting opportunities should be provided through provision of artificial boxes located either on the new build housing. A minimum of 6 of the detailed specifications are provided in Appendix 4.

Timing of Vegetation Clearance

Clearance of trees, scrub, hedgerows should be undertaken from October to February outside the bird breeding season (March to August inclusive). Alternatively, any works undertaken from March to August should be subject to a check for nesting birds by a suitably qualified ecologist immediately prior to removal of such habitats. If any active nests are found these should be protected, along with an appropriate buffer zone, until the nesting is complete and the young have fledged.

Substantive mitigation

Although only a small area of the site is to be lost to development, it is of relatively high quality and as such substantive mitigation will be required. The client proposes to undertake orchard planting with at least 21 local Provenance Pear trees in the following area of the site as mitigation outside the curtilage of the proposed development. These will be protected from horse grazing during their establishment phase.







Landscaping/Hedgerow replacement Plantings within garden area of new dwelling:

The landscaping of the developed site should include native trees and shrubs which are indigenous to the region. Any new plantings of native species should be of UK provenance.

The landscaping of the site should include habitat enhancements for birds through the provision of shrubs or trees that bear berries or nuts. Suitable species include holly, common hawthorn, wild cherry (Prunus avium), holly (Ilex aquifolium), rowan (Sorbus aucuparia) and guelder rose (Viburnum opulus). Alternatively, plant species that provide a rich source of nectar should be used. Suitable species include flowering herbs such as lavender (Lavendula spp), violets (Viola spp); or shrubs such as flowering currant (Ribes sanguineum), privet (Ligustrum vulgare), forsythia (Forsythia spp), dogwood (Cornus sanguinea), berberis (Berberis spp), pyracantha (Pyracantha sp) and Ceanothus (Ceanothus sp). A list of wildlife friendly plants suitable for formal landscaped areas is included in Appendix 6-12.

6.2 Additional Recommendations

Climbing Plants

The walls of the new building and any other boundary fences or vertical structures of the developed site could be landscaped with climbing plants supported by a trellis system. Suitable species could include ivy (Hedera helix), honeysuckle (Lonicera periclymenum), wild clematis (Clematis vitalba) wisteria (Wisteria sp), rose (Rosa sp) and Hart's tongue (Phytillis scolopendrium).

Good Horticultural Practice

The use of artificial fertilisers, herbicides and pesticides (herbicides, insecticides, fungicides and slug pellets etc) should generally be avoided, although pernicious weeds may need to be spot-treated with herbicide. Any pesticides used should be non-residual.

Mulch, growing media and soil conditioners used in the landscaping of the site should be peatfree products.

Fences and sheds should be painted with environmentally safe wood preservatives.

Insect houses

Insect houses could be installed in sunny positions in hedgerows, shrubs or on tree trunks, fence and garden sheds where they would provide a year-round resource for bumblebees, lacewings, and beetles etc. Such insects provide valuable pest control and flower pollination (see Appendix 5).

7.0 References

Bat Conservation Trust (2016) Bat Surveys – Good Practice Guidelines. Bat Conservation Trust, London.

Biodiversity Reporting & Information Group (2007) Report on the Habitats & Species Review: A Report to the UK Biodiversity Partnership. Joint Nature Conservation Committee, Peterborough.

Chartered Institute of Ecology and Environmental Management (2013) Guidelines for Preliminary Ecological Appraisal. CIEEM, Winchester.

Edgar, P, Foster, J and Baker, J (2011) Reptile Habitat Management Handbook. Amphibian Reptile Conservation and Natural England. Peterborough.

Gent, T. & Gibson, S. (2003) Herpetofauna Workers Manual. Joint Nature Conservation Committee, Peterborough.

Harris, S, Cresswell, P & Jefferies, D J (1988) Surveying Badgers. Mammal Society Occasional Publication 9.

APPENDIX 1: Phase 1 Habitat Plan



APPENDIX 2a: SPECIES RECORDED

Species	Common Name
Trees & Scrub	
Corylus avellana	Hazel
Cratagus monogyna	Hawthorn
Acer psuedoplatanus	Sycamore
Ilex aquilifolium	Holly
Pvrus communis	Pear
Rubus fruticosus agg	Bramble
Sambucus nigra	Elder
Acer pseudoplatanus	Svcamore
Ulmus sp.	Elm
Malus domestica	Apple
Betula pendula	Silver birch
Prunus spinosa	Blackthorn
Herbaceous Plants	
Achillea millefolium	Yarrow
Bellis perennis	Daisy
Cerastium fontanum	Common mouse-ear
Cirsium arvense	Creeping thistle
Cirsium vulgare	Spear thistle
Dactylis glomerata	Cocksfoot
Lonicera nericlymenum	Honevsuckle
Digitalis purpurea	Foxalove
Cirsium nalustre	Marsh thistle
Rosa arvensis	Field rose
Ranunculus ficaria	Lesser celandine
Poa pratense	Rough
Follohium montanum	Broad-leaved willowherh
Arum maculatum	Lords and ladies
Galium anarine	Cleavers
Geranium molle	Dove's foot crane's-bill
Geranium robertianum	Herb Robert
Hedera helix	Ivy
Viscum album	Mistletoe
I olium perenne	Perennial rye-grass
Plantago lanceolata	Ribwort plantain
Poa annua	Annual meadow grass
Ranunculus renens	Creeping buttercup
Holcus lanatus	Yorkshire fog
Primula veris	Primrose
Anthriscus sylvestris	Cow parsley
Taravacum officinalis and	Dandelion
Urtica dioica	Common nettle
Ficaria sp	Figwort
Filipendula ulmarium	Meadowsweet
Prupella vulgaric	Solfhool
Chenonodium	Fat hen
Viccum album	Mistlataa
Visculli dibulli Popupaulus paris	Mandow buttereur
Kanunculus acris	
	vvatercress
Stellaria sp.	Common stitchwort
I rifioium repens	White Clover
Rumex obsutifolius	Broad leaved dock

APPENDIX 2b: SITE PHOTOGRAPHS

























APPENDIX 3: EXAMPLES OF SWIFT AND HOUSE SPARROW NEST BOXES

Schwegler No 17 Triple Cavity Swift Box

This nest box is designed by Schwegler for swifts and constructed from plant-fibre based material to mimic their natural nest sites. The No 17 Triple Cavity can accommodate 3 pairs of swifts, assisting the rapid formation of colonies. It should be sited 6-7m above the ground, near the roof of a building.



Positioning: Under or close to roofs at least 5m from the ground. Ensure unobstructed access for birds Suitable for: Common swifts Material: Vegetable fibre material (asbestos-free) Height: 150mm Width: 900mm Depth: 150mm Weight: 7kg

Schwegler 1SP Sparrow Terrace

Sparrows are gregarious and prefer to nest close to each other, so this triple-nest box provides room for three families under one roof. It's made from long-lasting, breathable Woodcrete to provide the optimum environment for sparrows to nest and rear their chicks.



Positioning: On buildings of all kinds in typical habitats including industrial buildings and barns at a height of at least 2m (eg. under eaves)
Suitable for: House and tree sparrows and individual redstarts
Material: WoodcretePLUS
Height: 240mm
Width: 430mm
Depth: 220mm
Weight: 15kg

APPENDIX 4: EXAMPLES OF BAT BOXES AND BRICKS SUITABLE FOR BUILDINGS



Schwegler 1FR can be installed within brick masonry just leaving the entrance and can be rendered over.



Schwegler 2FR Bat Tube is the same design as the 1FR but with holes in the sides. Multiple tubes to be placed next to each other to form a much larger roost.



Schwegler 1FE Bat Access Panel can be surface-mounted or integrated. The open back enables bats access through exterior walls.



Modified bricks for creating bat access points. A standard brick is shown top left. Purpose made bat bricks can also be used.



Ibstock Enclosed Bat Box B is Schwegler WI integral Summer & designed specifically for the pipistrelle bat.



Schwegler 27 wall can be installed within brick masonry. It can be rendered over.



Ibstock Bat Box with Engraved Motif C is designed specifically for the pipistrelle bat and is available in all brick colours.



Winter Bat Box.



Schwegler 1FQ wall-mounted bat box.



Ibstock Free Access Bat Box allows bats to access the cavity wall of the building.



Norfolk Bat Brick allows bats to access the cavity wall of the building. The slits are the perfect size for Natterer's bat, Daubenton's bat, Brandt's bat and Brown long-eared.



Marshall's Bat Access Brick (Also available in stone) allows bats access into the cavity wall of the building.

APPENDIX 5: INSECT BOXES

A variety of insect boxes is recommended to encourage a diversity of species.

Wooden Insect House

A general insect habitat for beneficial insects in summer and, later in the year, over wintering ladybirds and lacewings. Locate in a sheltered place near nectar or pollen plants or by a pond.

Durable and strong construction in acacia, oak or larch with no maintenance necessary. D

imensions: $22 \times 13.5 \times 13.5$ cm.

Woodcrete Insect House

An insect nest made from long-lasting, insulating, woodcrete, with holes of different sizes providing homes for a variety of beneficial insects such as bees and solitary wasps.

Dimensions: $14 \times 8 \times 26$ cm; Weight: 3.65kg

Insect House with Inspection Tubes

This nesting and hibernation box for insects has a woodcrete exterior with a wooden front panel which can be removed for observation. Through the transparent tubes you can see the usually hidden lifecycle of many solitary types of bees and hymenoptera including egg-laying, development of larvae and sealing of brood chambers.

Typical inhabitants are wild bees and thread-waisted wasps. All the species attracted to this box are harmless non-aggressive pollinating insects.

Dimensions: $33 \times 21 \times 51$ cm; Weight: 7.1kg.







APPENDIX 6: BRITISH NATIVE TREES - HABITATS AND GROWING CONDITIONS

Species	Average mature / ultimate height			Growth rate			Soil/ground conditions					Tolerant of sites that are				Valuable for	
	0.5-5m	6m-15m	16m+	Fast	Medium	Slow	Wet ground	Light sandy solis	Heavy soils	acid	aikaline	Shaded	Polluted	Coastai	Exposed	Birds	insect
Alder	8 1	•	1						•		- 19 - 3	•	•		•		•
Ash		100			•								•		•	_	
Aspen		•	100.00	•									•		•		
Beech			•					•			•						
Birch, Downy	0 1														- X - S	-	•
Birch, Silver								•					•		•		
Blackthorn		- 22 - 1													•		
Broom				1.1.1.1.1.1	•							- ()					
Buckthorn, Alder																-	
Cherry, Wild					•												
Cherry, Bird					•							•		-			
Crabapple	1										•						
Elder		•		•		- 002		•			•	•	•	•	•		
Elm, Wych	0	•			•		Q				•	•	•	•	•		
Gorse	•				•					•	•						
Hawthorn			1		•	-					1		•		•		•
Hazel	-	•			1.1.1		-				•	•				-	
Holly		•						•	•		•		•	•		•	
Lime, small-leaved	0				•		Q				•						
Maple, Field					•						•						
Oak, Pedunculate	0						i				•				•		
Oak, Sessile			•									•			•		•
Pine, Scots				-	•		10000		1.1		8	- 10			•		
Poplar, Black			•								•						
Rose, Dog					•			•				- 5 9			- 18 - I		
Rose, Guelder			-	1	•							3 ()					
Rowan		•									S		•		•		
Spindle			1	1	•			- 22	•	100	•	•		- 97	1.00	- 22	
Whitebeam, Common	-											100					•
Wild Service	•								•		•	- 200					-
Willow, Crack	0					-							•		•		
Willow, Goat		•			•								•		•		•
Willow, White	1	10			1.10	-			128			- 201	•		•		
Yew	1	•	Contraction of	1.000							102 8			1.00		100	

British Native Trees - Habitats and Growing conditions.



Only species, to survive waterlogged elles with anserobic conditions. Will tolerate wet ground if there is some seasonality of "flushing (water movement) within the soil.

glasu

APPENDIX 7: NON-NATIVE PLANTS TO ATTRACT WILDLIFE

Buddleja X weyeriana cultivars

You can plant the orange-flowered B. X weyeriana hybrids with a clear conscience as they don't appear to produce viable seed, they also attract a broad spectrum of insects including both butterflies and bees, and they flower late into the season when nectar is scarce. The beautiful B. x fallowiana 'Lochinch' with silver leaves is attractive to butterflies and is also said not to produce seeds. The orange ball Buddleja (B. globosa) from South America seems to attract bees rather than butterflies.

Bupleurum fruticosum ('Shrubby Hare's Ear')

A shrubby evergreen umbellifer from Southern Europe, where it is often cultivated. It has leathery aromatic foliage and umbels of yellowish flowers, a bit like those of Fennel, that are very attractive to hoverflies and other small insects. Well worth growing for this reason.

Ceanothus X 'Gloire de Versailles'

Ceanothus come from the Western United States. Most Ceanothus have bunches of very small flowers that don't seem very attractive to insects. 'Gloire de Versailles' however is a hybrid with loose bunches of pale blue tubular flowers that are very attractive to butterflies and bees.

Caryopteris X clandonensis 'Kew Blue'

A deciduous shrub from China for a sunny position, has small tubular blue flowers attractive to insects.

Clethra alnifolia ('Sweet Pepper Bush')

A deciduous shrub from the Eastern united States that likes damp, acid or woodland soil.

Has spikes of small scented white flowers attractive to moths and butterflies.

Hebe X 'Great Orme' and H. X 'Midsummer Beauty'

Hebes are close relatives of the herbaceous genus Veronica, and come from New Zealand. Some are much more attractive to insects than others. 'Great Orme' is a medium-sized hybrid with pale pink flowers that are attractive to butterflies. It is a distinctive cultivar and available true to name in the nursery trade. 'Midsummer Beauty' seems to be more of a generic name for a series of large shrubs with blue or grey-blue flowers in long spikes, attractive to both bees and butterflies. There are a number of other blue and white flowered Hebes that seem very popular with bumblebees.

Myrtus communis ('European Myrtle')

An attractive evergreen shrub from the South of France and Spain with small evergreen aromatic leaves. It has been grown in our gardens for centuries, but is susceptible to hard frost and prefers a site against a warm sunny wall. Fluffy white flowers in early summer are bumblebees' heaven. Purplish berries follow later which are stripped by blackbirds in January.

Amelanchier species ('Shad Bush')

Shrubs with white cherry-like blossoms early in the year, followed by blackish berries in late summer. Valuable for the berries as a source of food for berry-eating birds when most other berries are not yet ripe.

Erica terminalis ('Corsican Heath')

A shrubby heather-like plant popular with bumblebees. The Cornish Heath, Erica vagans, from the Atlantic fringes of Europe is also a good bee plant. Erica manipuliflora, from Southern Europe, and its hybrid Erica X griffithii have fragrant flowers that attract butterflies.

Eupatorium ligustrinum

A late-flowering evergreen bush that looks very like a privet, but has bunches of white fluffy flowers in September and October. These flowers seem very attractive to range of insects, especially hoverflies.

Ribes sanguineum (Flowering Currant)

It is a very good early flower for bumblebees, as indeed are the flowers of the closely related blackcurrants and gooseberries.

APPENDIX 8: PLANTS GOOD FOR MOTHS, WITH SPECIES OF MOTH THEY ENCOURAGE BESIDE

Bird's Foot Trefoil (lotus corniculatus) - Burnet, Belted Beauty, Chalk Carpet, Latticed Heather Bladder Campion (silene vulgaris)- Campion, Marbled Coronet, Nettle Pug, Marbled Clover, Dark Brocade, Sandy Carpet Borage (borago officinalis) - Crimson Speckled Chives (allium schoenprasum) Wild Clary (salvia horminoides) - Twin-spot Carpet Biting Stonecrop (sedum acre) - Yellow Ringed Carpet, Northern Rustic Cowslip (primula veris) - Plain Clary, Northern Rustic Daisy - Bordered Straw Dropwort (filipendula hexapetala) - Satyr Pug Evening Primrose (oenothera biennis) - Elephant Hawk Field Scabious (kanutia arvensis) - Marsh Fritillary, Narrow Bordered Bee Hawk, Lime Speck Pug, Shaded Pua Foxglove (digitalis purpurea) - Lesser Yellow Underwing, Foxglove Pug Golden Rod (solidago) - Lime Speck Pug, Bleached Pug, Golden Rod, Wormwood Pug, V Pug Greater Stitchwort (stellaria holostea) - Dart, Yellow Underwing, Marsh Pug, Plain Clary Hedge Bedstraw (gallium mollugo) - Ruddy Carpet, Royal Mantle, Common Carpet, Wood Carpet, Water Carpet, Beech Green Carpet, Mottled Grey, Green Carpet Hedge Woundwort (stachys sylvatica) - Rosy Rustic, Plain Golden Y, Sub-angled Wave Hemp Agrimony (eupatorium cannabinum) - Wormwood Pug, V Pug, Lime Speck Pug, Marsh Pug, Gem, Scarce Burnished Herb Bennet (geum urbanum) - Riband Wave Herb Robert (geranium robertianum) - Barred Carpet Hollyhock (althaea rosea) - Mallow Kidney Vetch (anthyllis vulneraria) - 6-belted Clearwing Lady's Bedstraw (gallium verum) - Hummingbird Hawk, Small Elephant Hawk, Gallium Carpet, Plain Wave, Riband Wave, Bedstraw Hawk, Archer's Dart, Red Chestnut, Ruddy Carpet, Royal Mantle, Common Carpet, Water Carpet, Beech Green Carpet, Red Twin Spot Carpet, Wood Carpet, Mottled Grey, Green Carpet Lady's Mantle (alchemilla mollis) - Red Carpet Lesser Knapweed (centaurea nigra) - Silver Y, Lime Speck Pug, Satyr Pug Lesser Meadow Rue - Marsh Carpet Maiden Pink (dianthus deltoides) - Marbled Coronet Marjoram (majorana orignaum) - Sub-angled Wave, Lace Border Marshmallow (althea officinalis) - Marshmallow Meadow Clary (salvia pratensis) - Brown Spot Pinion, Hebrew Character, Powder4ed Quaker, Emperor Meadowsweet (filipendula ulmaria) Mullein - Mullein, Striped Lychnis Navelwort (umbilicus rupestris) - Weaver's Wave Pink - Hawk Primrose (primula vulgaris) - Pearl Bordered Yellow Underwing, Double Square Spot, Green Arches, Triple Spotted Clary, Ingrained Clary, Silver Ground Carpet Purple Loosestrife (lythrum salicaria) - Emperor, Small Elephant Hawk, Powdered Quake Ragged Robin (lychnis flos cuculi) - Campion, Lychnis, Twin-spot Carpet, Marbled Clover Red Campion (melandrium rubrum) - Rivulet, Campion, Lychnis, Twin-spot Carpet, Sandy Carpet, Marbled Clover Red Clover (trifolium pratense) - Latticed Heath, Chalk Carpet, Belted Beauty, Mother Skipton, Shaded Broad Bar, Narrow-bordered 5-spot Burnet Red Valerian (centranthus ruber) - Elephant Hawk Rock Rose (helianthemum mummularium) - Amulet, Cistus Forester, Silky Wave, Ashworth's Rustic, Argus, Wood Tiger, Northern Brown Rosebay Willowherb - Twin-spot Carpet, Small Phoenix, White Banded Carpet Small Scabious (scabiosa columbaria) - Lime Speck Pug, Shaded Pug Soapwort (saponaria officinalis) - Marbled Clover St John's Wort - Treble Bar

Sweet Rocket (hesperis matronalis)

Sweet Violet (viola odorata) - Broad Bordered Yellow Underwing, Lesser Broad Bordered Yellow Underwing

Tansy (tanacetum vulgare) - Essex Emerald

Thrift (armeria maritima) - Amulet, Feathered Ranunculus, Thrift Clearwing, Black Banded Thyme - Thyme Pug, Satyr Pug, Lace Border

Toadflax (linaria vulgaris) - Toadflax Pug, Marbled Clover

Valerian (valeriana officinalis) - Valerian Pug, Lesser Cream Wave

Viper's Bugloss (echium vulgare)

White Campion (silene latifolia alba) - Marbled Coronet, Marbled Clover, Sandy Carpet Wild Basil (clinopodium vulgare)

Wild Clematis (clematis vitalnba) - Lime Speck Pug, Haworth's Pug, Small Emerald, The Fern, Pretty Chalk Carpet, Least Carpet, Pug, Chalk Carpet, Small Waved Umber

White Clover (trifolium repens) - Cloudy Wing Skipper, Orange, Clouded Sulphur

Wild Pansy (viola tricolor) - Pluvia

Wild Strawberry (fragaria vesca) - Amulet, Yellow Shell, Beautiful Carpet, Dark Marbled Carpet Wild Wallflower - Flame Carpet

Wormwood (artemesia absinthium) - Wormwood Pug

Yarrow (achillea millefolium) - Essex Emerald, Lime Speck Pug, Straw Belle, Wormwood Pug, Ruby Tiger, Yarrow Pug, V Pug, Sussex Emerald, Grey Pug, Tawny Speckled Pug, Common Pug, Mullein Wave Yellow Flag Iris (iris pseudacorus) - Belted Beauty, Water Ermine

Barberry - Scarce Tissue, Wheat

Blackthorn/Sloe - March, Common Emerald, Little Emerald, Mottled Pug, Feathered Thorn, Orange, Scalloped Hazel, Scalloped Oak, August Thorn, Brimstone, Early Thorn, Pale Brindled Beauty, Blue Bordered Carpet, Broken Barred Carpet, November, Pale November, Winter, Sloe Pug, Green Pug, Sharp Angled Peacock, The Magpie

Broom - Grass Emerald, The Streak, Broom-tip, Lead Belle, Spanish Carpet, Frosted Yellow Dog Rose - V Pug, Little Thorn, Shoulder Stripe, Barred Yellow, Streamer

Hawthorn - March, Common Emerald, Little Emerald, November, Pale November, Winter, Mottled Pug, Pinion Spotted Pug, Common Pug, Grey Pug, Peppered, Brindled Beauty, Pale Brindled Beauty, Feathered Thorn, Scalloped Hazel, The Magpie, Scalloped Oak, Large Thorn, Early Thorn, Oak Tree Pug, Broken Barred Carpet

Hazel - Oak Beauty, Small White Wave, The Magpie, Clouded Border, Barred Umber, Winter, Pale November

Oak - Brindled Pug, Oak Tree Pug, Spring Usher, Peppered, Oak Beauty, Brindled Beauty, Pale Brindled Beauty, Small Brindled Beauty, Feathered Thorn, Orange, Lunar Thorn, Purple Thorn, Scalloped Hazel, Scalloped Oak, Scorched Wing, Large Thorn, August Thorn, November, September Thorn, Pale November, Winter, March, Blotched Emerald, Common Emerald, Little Emerald, False Mocha, Maiden's Blush, Marbled ug, Red-green Carpet, Broken Barred Carpet

Rowan - Orange Underwing, Welsh Wave, Mottled Pug, Red-green Carpet

Wild Privet - Lilac Beauty, Barred Toothed Striped, Yellow Barred Brindle, Small Bloodvein

APPENDIX 9: PLANTS AND HABITATS TO ATTRACT BATS

Flower Borders and Lawns

Larvae and adults of many insects will be catered for by introducing a wide range of food, in the form of nectar, seeds and fruit as well as vegetation.

- Grow night scented flowers. These attract moths and other night flying insects of particular importance to bats.
- Plant herbs and old fashioned cottage-garden annuals attractive to insects.
- Leave part of your lawn un-mown from about mid May to encourage insect larvae which feed on grass. Allow to seed before cutting, and rake up the hay afterwards.
- Sow wild flower seed collections in your borders.

Trees and Shrubs

At woodland edges space and sunshine combine with the trees to give shelter and warmth, and insects will concentrate there. So even in the smallest garden try to have at least one tree or shrub. Native trees are more attractive to insects than foreign species.

If space is limited, silver birch and goat willow are quick growing and are host to many insect visitors. With a little more space, try to make a bank of vegetation to give your garden a woodland edge structure.

Shelter Belts

Rows of bushes or trees can be created or improved, encouraging concentrations of insects and providing a feeding area for bats,

- Plant up gaps in natural hedges,
- A row of fast-growing cypress can be valuable.
- Train climbers using battens against a wall or fence, to provide possible roosting sites.
- Create a sheltered corner by using any combination of walls, fences, hedges or woodland edge at two angles.

Scented herbs

Chives, Borage, Lemon balm, Marjoram, Mint - many varieties **Night scented flowers for the** border (in approximate order of flowering)

Bedding Plants

Nottingham catchfly Night-scented catchfly Bladder campion Night-scented stock Sweet rocket Evening primrose Tobacco plant Cherry pie Soapwort Climbers European honeysuckle Italian honeysuckle Japanese honeysuckle Honeysuckle (native) White jasmine Dogrose Sweetbriar Fieldrose Ivv Bramble - many species

Large trees, small trees and shrubs

Oak Ash Silver birch Field maple Hawthorn Silene nutans S. noctiflora S, vulgaris Matthiola bicornis Hesperis natronalis Oenothera biennis Nicotiana affinis Heliotropun x hybndurr Saponaria officinalis

L. etrusca superba L. japonica halliana L. periclymenum... Jasminium otiicinale Rosa canina R. rubiginosa R. arvensis Hedera helix

Quercus robur & Q. petrea Fraxinus excelsior Betula pendula Acer campestre Crataegus monogyna July-November July-August August-October July-August Alder Goat willow Guelder rose Hazel Blackthorn Elder Buddleia davidii **Rock plants for walls** Ivy-leaved toadflax Wall pennywort Stonecrop Ainus glutinosa Salix caprea Viburnum opulus Coryllus avellana Prunus spinosa Sambucus nigra

Cymbana muralis Umbilicus rupestris Sedum acre bertianum

APPENDIX 10: PLANTS TO FEED BIRDS

Many shrubs, climbers, trees, garden and 'wild' plants provide food, directly or indirectly, through berries, seeds or the insects they attract.

Berry or fruit bearing trees and shrubs will attract members of the Thrush family, Blackbird, Fieldfare, Mistle and song Thrush, Redwing and Robin. Also Starlings and, in some winters, Waxwing and even some Warblers, e.g., Blackcaps who eat berries in the early autumn before they migrate. Unless mentioned, the berries attract all the above birds plus others as specified. Shrubs with berries.

- Aronia arbutifolia (Red Chokeberry) : bright red fruits
- Berberis: most forms have black/purple berries, especially loved by Blackbirds.
- Callicarpa 'Profusion': bright violet coloured berries.
- Cornus (Dogwood): blue tinted white berries (not C.Mas).
- Cotoneaster : prolific red, orange or yellow berries birds often choose red first, through orange to yellow last. (Note berries are poisonous to humans).
- Euonymous europaeus (spindleberry: large bright red fruits which open to emit orange red seeds.(Note berries are poisonous to humans).
- Ilex (Holy): red, orange or yellow berries red berries preferred (need partner to fruit).(Note berries are poisonous to humans).
- Mahonia: decorative black berries.
- Rosa rugosa : large red hips, particularly attractive to Greenfinches which pick out the seeds.
- Sambucus (Elder): red or black berries over 32 species reported eating them, especially Blackcap and, occasionally, Collar Doves.
- Viburnum opulus (Guelder Rose) : translucent berries
- Viscum album (Mistletoe): familiar white globular berries of this parasite that grows in trees, especially apple, are a good food source for Blackbirds.

Climbers With Berries.

- Chaenomeles (Flowering Quince/Cydonia): Autumn Quinces.
- Hedera (Ivy) : shiny black berries
- Lonicera (Honeysuckle: red or black berries attract Thrushes plus Bullfinches and Marsh and Willow Tits. (Note berries are poisonous to humans).
- Pyracantha (Firethorn) :red, orange or yellow berries choose red for the birds to eat before Christmas usually with orange or yellow to follow in a hard winter.
- Clematis vitalba (Old Man's Beard): seed heads are enjoyed by many birds.

Trees with Berries or Fruits.

- Crataegus monogyna (Hawthorn : red berries.
- Malus (Crab Apple: red fruited varieties are best for birds.
- Prunus (Cherries): fruits quickly picked off.
- Sorbus aucuparia (Mountain Ash/Rowan) :red, orange or pink flushed white berries. The darker the fruits the more attractive they are to birds. Occasionally bring Spotted Flycatchers to the garden.
- Taxus (Yew): sparse red berries attract a wide range of birds. Attractive also to Badgers.(Note berries are poisonous to humans).

Trees with Seed Cones.

- Alnus glutinosa (Alder), and Betula (Birch): seeds from cones enjoyed by Goldfinches, Greenfinches, Redpolls, Siskins and Tits.
- Pinus sylvestris (Scots pine) : pine cones from which Crossbills and Great Spotted Woodpeckers prise seed.

Trees with Blossom.

• Although not always welcome, Bullfinches strip the buds of fruit trees in late winter and early spring.

Garden Plants.

- Crocus: yellow and orange flowers are attractive to Sparrows because they contain yellow pigment carotene to brighten up their plumage for the breeding season.
- Echinops ritro (Globe Thistle: seed heads are eaten by Goldfinches and flower heads attract insects.

- Helianthus (Sunflower: seed heads are eaten by Greenfinches. The nectar attracts a wide range of insects.
- Lavandula (Lavender): flowers going to seed are attractive to Goldfinches.

• Primula (Polyanthus/Primrose): yellow and orange flowers are attractive to Sparrows. Wild Plants.

You can provide a haven for wild plants to exist in their own right recreating a wild meadow to attract insects which, in turn, attract birds and other wildlife. We sell nursery grown 'wild' plants throughout the year so that you can go wild in a corner of your garden.

- Betony.
- Bird's Foot Trefoil.
- Common Poppy seeds are favourite food of Finches.
- Field Scabious.
- Greater Knapweed.
- Meadow Cranesbill.
- Musk Mallow.
- Ox Eye Daisy.
- Oxlip.
- Primrose.
- Rough Hawkbit.
- Self Heal.
- Teasel seed heads are a favourite food of Goldfinches.
- Wild Strawberry

The Lawn.

This is one of the principal sources of food for birds who enjoy feeding on insects including-:Ants eaten by Green Woodpeckers; Leatherjackets by Starlings; Snails by Song thrushes; Slugs by Toads and Worms by Blackbirds, Robins and Thrushes.

Cover and Protection.

By surrounding your garden by thick and often prickly hedging and dotting suitable shrubs around, you can provide safe nesting havens that are protected from marauding cats and even the unwelcome attention of unfriendly humans.

The most successful shrubs and trees for this purpose include:-

- Conifers especially chamaecyparis, Taxus (Yew) and Thuja Placata.
- Crataegus.
- Eleagnus.
- Hedera (Ivy) up a tree.
- Ligustrum (Privet) especially for Blackbirds.
- Lonicera (Honeysuckle).
- Pittosporum.
- Salix caprea (Weeping Kilmarnock Willow).
- Viburnum.

APPENDIX 11: NATIVE PLANTS FOR BEES

Native plants should be your first choice to help our native bees. Listed below are some plants that are good sources of nectar or pollen for bees. Both the common and Latin names of the plant genus are given. This list is not exhaustive; there are many other plants good for bees. Individual species have not been included because we hope the list will be useful across the U.S. Not all of these genera will have species in your local area, but they do represent plants that will grow in a variety of environments. Use a wildflower guide or contact local nurseries to find your local species.

- Aster Aster
- Black-eyed Susan Rudbeckia
- Caltrop Kallstroemia
- Creosote bush Larrea
- Currant Ribes
- Elder Sambucus
- Goldenrod Solidago
- Huckleberry Vaccinium
- Joe-pye weed Eupatorium
- Lupine Lupinus
- Oregon grape Berberis
- Penstemon Penstemon
- Purple coneflower Echinacea
- Rabbit-brush Chrysothamnus
- Rhododendron Rhododendron
- Sage Salvia
- Scorpion-weed Phacelia
- Snowberry Symphoricarpos
- Stonecrop Sedum
- Sunflower Helianthus
- Wild buckwheat Eriogonum
- Wild-lilac Ceanothus
- Willow Salix

Garden plants for bees

Flower beds in gardens, business campuses, and parks are great places to have bee-friendly plants. Native plants will create a beautiful garden but some people prefer "garden" plants. Many garden plants are varieties of native plants, so this list only includes plants from other countries--"exotic" plants--and should be used as a supplement to the native plant list. As with the native plants, this list is not exhaustive.

- Basil Ocimum
- Cotoneaster Cotoneaster
- English lavender Lavandula
- Giant hyssop Agastache
- Globe thistle Echinops
- Hyssop Hyssopus
- Marjoram Origanum
- Rosemary Rosmarinus
- Wallflower Erysimum
- Zinnia Zinnia