A Preliminary Ecological Assessment & Mitigation for the land at 68 Penn Grove Road

Aim: To establish the presence or absence of priority habitats or protected species.

Mr R Nash
68 Penn Grove Road,
Hereford
HR1 1BT

Reference: 2RN\Bat & bird's survey.doc
2nd November 2023

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1.0 Introduction

As part of the planning application for a single dwelling on land to the rear of the house at 68 Penn Grove Road, it is necessary to survey the areas to be directly affected by the proposal, to establish whether there are any protected species currently using the site, or any priority habitats in the area to be affected. This report should be read in conjunction with the Tree Survey & Arboricultural Impact Assessment Rev B dated August 2023.

2.0 Methodology of Surveys

An extended Phase one habitat survey was carried out on the 12th September 2023 by Ros Willder a full member of CIEEM, a Chartered Environmentalist and a Licensed Ecologist CLS12870. The survey followed the standard Phase One Habitat Survey methodology (JNCC, 2010) and focused on:

- A habitat survey to determine type, quality and extent of habitats present (using the DAFOR scale, which is Dominant, Abundant, Frequent, Occasional & Rare). Botanical lists of each habitat type where appropriate.

- A survey to determine the presence of, or the potential for the site to support protected animals which include the following:-

- Potential for reptile or amphibians particularly great crested newt.

- Potential for Badgers to use the site such as evidence of setts, latrines, tracks etc

- Potential for breeding birds or bats to use the site

A desktop study was undertaken using the MAGIC Map Service, from Natural England, to identify any priority habitats, species, and designated sites within a 2km radius of the proposed site as shown in appendix three. In addition, a pond search was carried out for all standing bodies of water within 250m and 500m of the location of the land, the results of which are discussed in Section 4 & Appendix four.

3.0 Results of Surveys

3.1 Examination of the Land at 68 Penn Grove road

The land at 68 Penn Grove road is bordered to the west by Penn Grove road. To the north of the proposed site is 70 & 72 Penn Grove & their residential gardens. To the east are more residential properties of Burwood Close & to the South of the site there is the house & garage at 66 Penn Grove road.

The site proposed for the single dwelling is currently used as a large rear garden.

The gardens are comprised of regularly close mown lawns at both the front & rear of the house. As such the grassland is classified as amenity grassland. The grassland is comprised of Broadleaved Dock, Nettle, Self-Heal, Creeping Buttercup, Sphagnum Moss, Red Fescue, Yorkshire Fog, Common Daisy, Couch Grass, Ground Ivy, White Clover, and Yarrow. The tarmacked access driveway runs from the road along the northern edge of the front garden and leads to a patch of gravel used for parking as shown in figures one & two.

Figure 1 – showing the front garden and driveway

Within the front garden there are two small ornamental shrubs (as shown in figure one). The neighbouring properties can be seen in the background of figure one above.

The front garden is bordered to the east by a stone flower bed with bare ground as shown over the page in figure three.

Boundary One is a large 3m tall hedgerow comprised of Leylandii and Laurel, on the northern boundary of the site as shown in figures one & two. The hedgerow would be classed as species poor hedge.

Figure 2 – the access driveway

Figure 3 – The stone flower bed with bare ground & boundary two

Boundary 2 – is the eastern boundary of the front garden & the existing house at 68 Penn Grove as shown figures two & three.

Boundary 3 – on the southern boundary of the front garden is a tall wide hedgerow with trees comprised of Lawson Cypress, Yew, Beech, Laurel, Cherry Tree (T1), Hawthorn, Walnut (T2) and a Grand Fir (T3). Adjacent to the hedge there is a group of garden shrubs that have merged into the hedge comprised of Hazel, Buddleia, Holly, Magnolia, Rhododendron, Pyracantha and Bramble as shown below in figure four.

Figure 4 – Boundary three

Boundary 4 – Is the roadside western boundary of the front garden and is comprised of a single species short 1.5m high Privet hedge & one Cherry Tree (T4), which is to be retained as it has a TPO.

Figure 5 – showing Boundaries 1,3 & 4 viewed from the eastern side.

The front garden is to be fully retained by this proposal with the existing driveway used access the rear garden. All boundaries and trees for the whole site both front & rear gardens are marked on the Phase one habitat maps in appendix two.

The Rear Garden

The rear garden is predominately comprised of amenity grassland that is regularly close mown with a series of concrete pathways & flower beds & tall boundary hedges & trees as shown in figure six below.

Figure 6 - The rear garden amenity grass lawns

The Amenity grassland is comprised of Broadleaved Dock, Nettle, Self-Heal, Creeping Buttercup, Sphagnum Moss, Red Fescue, Yorkshire Fog, Common Daisy, Couch Grass, Ground Ivy, White Clover & Dandelions with the addition of Autumn Hawkbit as well as Cyclamen, Common Dog violet & Foxgloves, at the edge of the grassland under the trees.

In addition to the close-cut grassland there are small flower beds adjacent to some of the concrete paths & concrete stairs as shown above in figure six & over the page in figure seven. These flower beds are comprised of a mix of Lavender, Iris *Iris sibirica*, Heather, Ivy, Budleigh & Pendulous Sedge & even Leylandli saplings.

Figure 7- The flower bed by the stairs & path

Another area of a group of overgrown stone raised flower beds (covered in ivy) are located under a False Cypress Tree (T15) by B7 as shown on the Phase one Habitat plan in appendix two & Figure eight below & figure ten over the page. These flower beds are comprised of Guelder Rose *Viburnum opulus,* Sycamore & Ash saplings, Iris *Iris sibirica*, Bleeding heart *Lamprocapnos spectabilis* & Dog rose *Rosa Canina.*

Figure 8 The raised flower beds by B7

At the edge of the raised flower beds is an area of concrete & an internal hedge comprised of leylandli & Beech (B7) as well a dilapidated garden shed as shown in figure nine below & also on the Phase one habitat plan in appendix two. The shed roof has

collapsed & it was known at the time of my visit that it was due to be removed due to its poor state.

Figure 9 The garden shed by internal hedge marked as B7

Although the majority of the habitats are close cut amenity grassland used as garden lawns as shown below, there are also a number of individual trees whilst the majority are within or adjacent to the boundaries of the site there are two individual trees T15 Apple tree & T16 Cypress tree opposite B7 as shown below in figures ten & eleven.

Figures 10 – Apple tree T16

Figure 11 – False Cypress

All of the rest of the hedgerows with trees in the rear garden are comprised of the Boundraies around the garden.

Boundary five forms the southern boundary of the rear garden between the existing house & the neighbouring property and is comprised of a Yew Hedge with a tall Lawson Cypress tree T17 & an Apple tree T18 as shown below in figure twelve.

Figure 12– A Lawson Cypress tree & a Yew hedge & an apple tree B5

Boundary six forms the southeastern boundary & is comprised of a trimmed Yew Hedge with tall Lawson Cypress behind it as shown below in figure thirteen.

Figure 13– A Lawson Cypress & a Yew hedge B6

Boundary seven is comprised of an internal Beech Hedge at one end & Lawson cypress at the other end as shown in figure fourteen below & on the Phase one habitat map in appendix two.

Figure 14 – A Lawson Cypress & a Yew hedge B6 (with T15 behind)

Boundary eight forms the northern boundary of the site & is a mixed hedge with a section of Lawson Cypress as well as Holly, Yew, Evergreen ornamental *Choisa* & Evergreen shrub from the Honeysuckle family *Lonicera nitida* as well as an Apple tree T10 & a Beech tree T11 in the far corner.

Figure 15 – A Lawson Cypress & mixed hedge B8 with T10

Boundary nine forms the eastern boundary & is comprised of a hedgerow comprised of ivy-covered tall Lawson Cypress, Rhododendrons as well as ornamental shrubs as shown in figure sixteen below.

In addition, there is a Holly tree T14 & a Cherry Tree T13 as well as a garden lamppost adjacent to this hedgerow boundary as shown below.

Figure 16 – A Lawson Cypress & mixed hedge B9 with T13 & 14

All of the boundary hedges will be retained by this proposal apart of the species poor internal garden hedge B7 as shown in the proposed plan & in detail in the tree constraints plan in the tree report.

4.0 Designated site, pond search & ecological assessment.

4.1 Pond Search

As a part of the desktop study, a pond search was carried out to a radius of 500m from the site, this identified one pond. Pond one is situated 350m away, to the southeast of the site & separated from the site by the main A465 which acts as a physical barrier for Great Crested Newts (GCN). As shown in pond search map in appendix four.

In addition, the site survey found that there are three small ornamental garden ponds none of which are on the proposed site as shown in figures seventeen, eighteen & nineteen. The Garden ponds one & two are 2m by 1m and are formed by solid plastic moulds. They had between 4-8 inches of water in at the time of survey, however they are known to be consistently dry in the spring and summer months making them unsuitable for use by breeding GCN.

Each pond has a formal stone surround with small rose bushes & ornamental vegetation & is surrounded by close mown lawns reducing the likelihood of being used by any amphibians.

Figure 17 – small Garden pond one

Figure 18 – Garden Pond Two

In the garden of the property is another very small pond as shown in figure nineteen below and that also dries up in spring/summer and is 100% shaded.

Figure19 – small garden pond three

As all three ponds are ornamental stone sided & dry in the spring & summer months & surrounded by close mown lawns, they are considered to have poor suitability for any GCN.

4.2 Designated site search

A designated site search was carried out using the MAGIC Map Service from Natural England to identify designated sites and priority or legally protected habitats and species records within a 2km radius of the proposed development. There are several sites of special scientific Interest within the search radius, River Lugg SSSI 1.1km away from site, Lugg and Hampton Meadows SSSI is 1km away and the River Wye SSSI and Special area of Conservation (SAC) is 1.4km away.

As a SAC was identified within 1.4km away from the site further consideration as to the potential impacts of this proposal will have to be taken into account see section 4.3 Ecological Assessment.

The following Priority habitats were recorded within the 2km search radius; Coastal and floodplain grazing marsh, Good quality semi-improved grassland, Lowland meadows, Deciduous Woodlands, and Traditional Orchard's. None of the identified Deciduous Woodlands were notified as ancient woodland.

The following species were also recorded within the search radius; Lapwing, Curlew, Grey Partridge, Tree Sparrow, GCN, Common Pipistrelle and Brown Long Eared.

Despite the above BAP Priority habitats being recorded within the local area, there were no priority or protected habitats (apart from the ornamental ponds) recorded within the proposed development boundary and as a result of the proposed single dwelling, there will be minimal impact as a result of the proposed works if the recommendations are followed.

4.3 Ecological Assessment

The habitats to be lost within the proposed site for the single dwelling are comprised of predominately close mown garden lawned areas (amenity grassland) with concrete paths that lead to two small areas of raised flower beds, a species poor internal garden hedge (B7) & an individual ornamental garden tree (False Cypress T15) as shown in figures eleven, fourteen & fifteen.

As part of this proposal none of the tall boundary habitats (hedgerows & trees) will be lost. The only habitats to be lost will be a short section of species poor garden hedge, an ornamental tree & close mown grass lawn & raised flower beds for the proposed site of the new dwelling.

The existing access drive will be utilized for this proposal with the existing block paving along the northern boundary of the site used to create a new driveway & a new gated access into the proposed site. In order to create a safe turning & parking area by the proposed new dwelling it will be necessary to trim back some of the hedgerow along Boundary eight (B8) & also remove one Apple tree T10 as shown below in figure twenty & in the proposed plan in appendix five.

Figure 20 – Paving slabs & Apple tree T10 & B8

Any vegetation clearance will need to be carried out, outside of the main birds nesting season March/April to August even though the shrubs have a low suitability for nesting birds to avoid any potential harm.

The area around the house is predominantly close mown amenity grass within the red development boundary & currently brightly lit by external lights of the house at 68 Penn Grove & the lamp post light in the rear garden as shown in figure sixteen.

There will be no adverse impacts on any amphibians including GCN by this proposal as none of the ornamental ponds will be affected by this proposal and will in fact be retained & restored, with the only other identified pond being divided from the site by a main road & situated 400m away.

The land is predominately amenity grass which is regularly close mown which provides limited cover for GCN as such the likelihood of any adverse impacts on GCN is considered to be negligible.

Even though there will be no direct impacts on the designated sites or European protected species in the area due to the River Wye SAC being 1.4Km away further consideration such as are there any secondary impacts such as increased light spill or potential for phosphate leaching or run off from construction activities as such the foul water drainage & construction impacts have been considered.

But because the land is already lit by the adjacent house on site (which has several external lights as shown on the photo on the front cover). As well as the adjacent properties to the proposed site & the street lights on the road & the lamp post in the rear garden this proposal will not increase the current light levels in the area.

The existing foul water drainage system of the main house will be utilized, thus causing no potential for any phosphate leaching & no secondary impacts such as light spill into the built-up wider area.

For the full details of the proposed foul water management see the Surface Water Management foul Drainage Strategy for 68 Penn Grove contract ref FD150 Rev 3 Report.

However, the construction works will be required that all materials & mixing of materials will be confined to areas of hard standing so that the boundary habitats to be retained will not be adversely affected.

As no boundary habitats will be lost the impacts of this proposal will be confined to the site itself & there will be no impacts to the wider areas or designated sites including the River Wye SAC.

Whilst the impacts of the proposal are minimal, this doesn't mean that enhancements cannot be designed into the proposal to provide an overall biodiversity gain for wildlife.

5. Conclusion, Mitigation Enhancements

In conclusion the habitats to be directly lost by this proposal are limited to part of a close mown amenity lawn, flower beds, a short section of a species poor hedge & one ornamental tree & one fruit tree (both of which have no features suitable for use by bats). As all of the trees in the boundary habitats will be retained on this site the proposal will have minimal impacts.

To further minimise the impacts of this proposal the ornamental tree & apple tree & species poor hedge (Lawson cypress & beech) will be removed outside of the main birds nesting season so that there is no potential to disturb or harm any nesting birds as detailed in section 5.1 Mitigation. The ornamental ponds will be restored to hold water all year round & the edges planted with native plants to encourage their use by wildlife see details in the mitigation section 5.1.

In addition, as there is the River Wye SAC within a 1.4km of the proposed site it is recommended that during construction of the single dwelling, all materials & mixing of materials is confined to the areas of hard standing on the site to avoid any potential for run off into the boundary habitats on site which are all to be retained & protected during the construction process (see tree protection plan in the tree report for details).

The proposed site is currently well lit by the existing House adjacent to the proposed site & the surrounding properties & the street lights & the lamp post in the garden as such it is not envisaged that this proposal will cause any additional light spill in this already built-up area that would cause any impact to the wider dark skies of Herefordshire or the River Wye SAC.

Even though the works are deemed to have minimal impact to the local area this does not mean that enhancements cannot be designed to enable a clear biodiversity gain for wildlife as part of this proposal see section 5.2.

5.1Mitigation strategy (a precautionary approach)

All persons involved in the works to build the new dwelling shall receive a detailed 'Toolbox Talk' on Nesting birds, Great Crested Newts & the importance of the River Wye SAC & River Lugg SSSI from Ros Willder of Willder Ecology, or a similarly qualified ecologist.

The toolbox talk will cover the following: -

- the full legal protection of Nesting birds & amphibians (GCN)
- the timing of tree & shrub removal outside of the main nesting season March/April to August.
- The protection of all the boundary habitats to be retained (trees & hedgerows) as per the tree fencing protection plan in the Tree report.
- Designated sites (River Wye SAC & River Lugg SSSI) Location & their importance & protection
- The lifecycle of Great Crested Newts (GCN) & what habitats they will be found in & how to identify a GCN.
- Best practice during construction works will include mixing & storing material confined to areas of hard standing & control of any dust or noise from the site & control of working times within the evenings.
- What to do if evidence of nesting birds or Great Crested Newts are found during works.

If any amphibians such as GCN are found during any works all works will cease until Natural England & a Licensed ecologist has been contacted and way forward agreed which may include a license application to permit the works to continue.

No new external lighting are planned on the walls of the new dwelling that could cause additional light spill into the surrounding area any external lights by the front door will be directional

downlighters to maintain dark skies in the wider countryside.

5.2 ENHANCEMENTS

A stone open fronted bird box will be incorporated into the top of the wall on the side elevation of the new dwelling as shown in appendix five.

As an enhancement for bats an integral Eco bat box will be included in the wall on the rear elevation & a soffit box used at the roof edge to encourage future use of the extension by bats as shown in Appendix five.

Ideally the existing ornamental ponds will be restored so that they hold water all year long & their edges planted up with native emergent plants to benefit wildlife.

If all the recommendations are followed no harm will occur to either the designated sites, priority habitats, bats or birds and enhanced provision will be made for future use by both bats and birds & other wildlife as an overall enhancement for biodiversity to the site.

A new native species rich hedgerow will be planted comprised of field maple, hazel, dogwood, field rose & crab apple along the area between the existing house & the proposed as shown in appendix five.

APPENDIX ONE LEGAL STATUS OF BATS & BIRDS

LEGAL PROTECTION OF BATS

The Wildlife and Countryside Act 1981 (WCA) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (commonly referred to as the 'Bern Convention'. The 1981 Act has been amended several times, most recently by the Countryside and Rights of Way [Crow] Act 2000, which added 'or recklessly' to S 9 (4)(a) and (b).
All species of bats are listed on Schedule 5 of the 1981 Act, and are therefore subject to the provisions of section 9, which make it an offence to:

- Intentionally kill, injure or take a bat
- Possess or control any live or dead specimen or anything derived from a bat Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for that purpose

The Conservation of Habitats and Species Regulations 2017 which consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law and came into force on 30th November 2017.

All bats listed on Annex IV of the Directive and some are also listed on the Annex II. The latter Annex relates to the designation of Special Areas of Conservation (SACs) and covers **Greater** and **Lesser Horseshoe bats**, **barbastelle** and **Bechstein's** bat.

Inclusion on Annex IV ('European protected species) means that member states are required to put in place a system of strict protection as outlined in Article 12; this is done through inclusion on Schedule 2 of the Regulations. Regulation 53 makes it an offence to;

- Deliberately capture or kill a bat Deliberately disturb a bat
- Damage or destroy a breeding site or resting place of a bat
- Keep, transport, sell or exchange, or offer for sale or exchange alive or dead bat or any part of a bat

LEGAL PROTECTION OF BIRDS

The Wildlife and Countryside Act 1981 is the main instrument for the protection of wild birds in the law of England, Wales and Scotland.

It protects all wild birdsof whatever species (certain exceptions apply within the act).
Barn Owls are listed on Schedule 1 which gives them special protection.

The act makes it an offence "if any person intentionally- Kills, injures or

takes (handle)any wild bird;

Takes, damages or destroys the nest of any bird while that nest is in use or being built; (barn owls do not 'build' a nest but may make a nest scrape) or

Takes or destroys an egg of any wild bird"

It is also an offence "if any persons have in his possession or control-

any live or dead wild bird or any part of, or anything derived from, such a bird; or An egg of a wild bird or any part of such an egg" (s 1 (2)).

LEGAL PROTECTION OF AMPHIBIANS AND REPTILES

Reptiles are protected from killing and injury (two species are fully protected, this includes, but is not confined to:

Disturbance and deliberate destruction of their habitat) under The Wildlife and Countryside Act 1981 (as amended).

The Conservation (Natural habitats &c.) regulations 1994 (the habitats Regulations were recently updated by
The Conservation of Habitats and Species regulations 2017

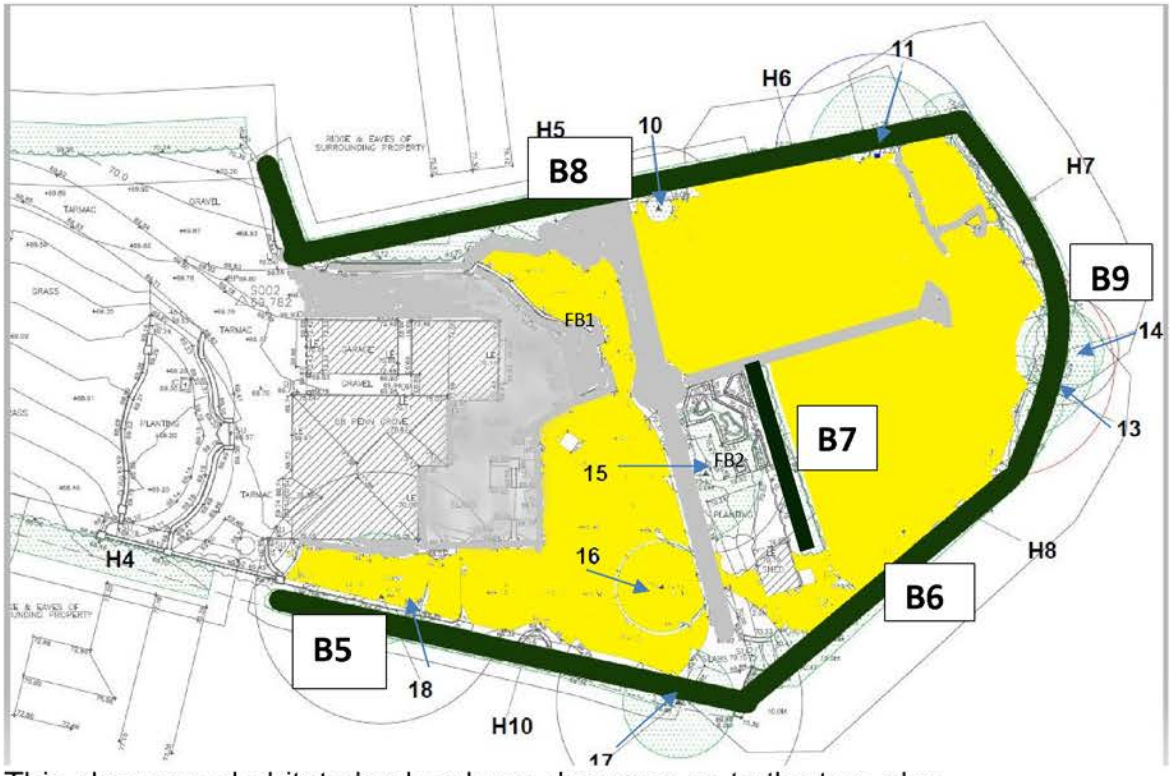
Amphibians such as Great crested newts are fully protected, including protection against:

- Deliberate disturbance
- Deliberately killing or capturing
- Deliberately taking or destroying eggs
- Deliberately damaging or destroying breeding sites and places of shelter.

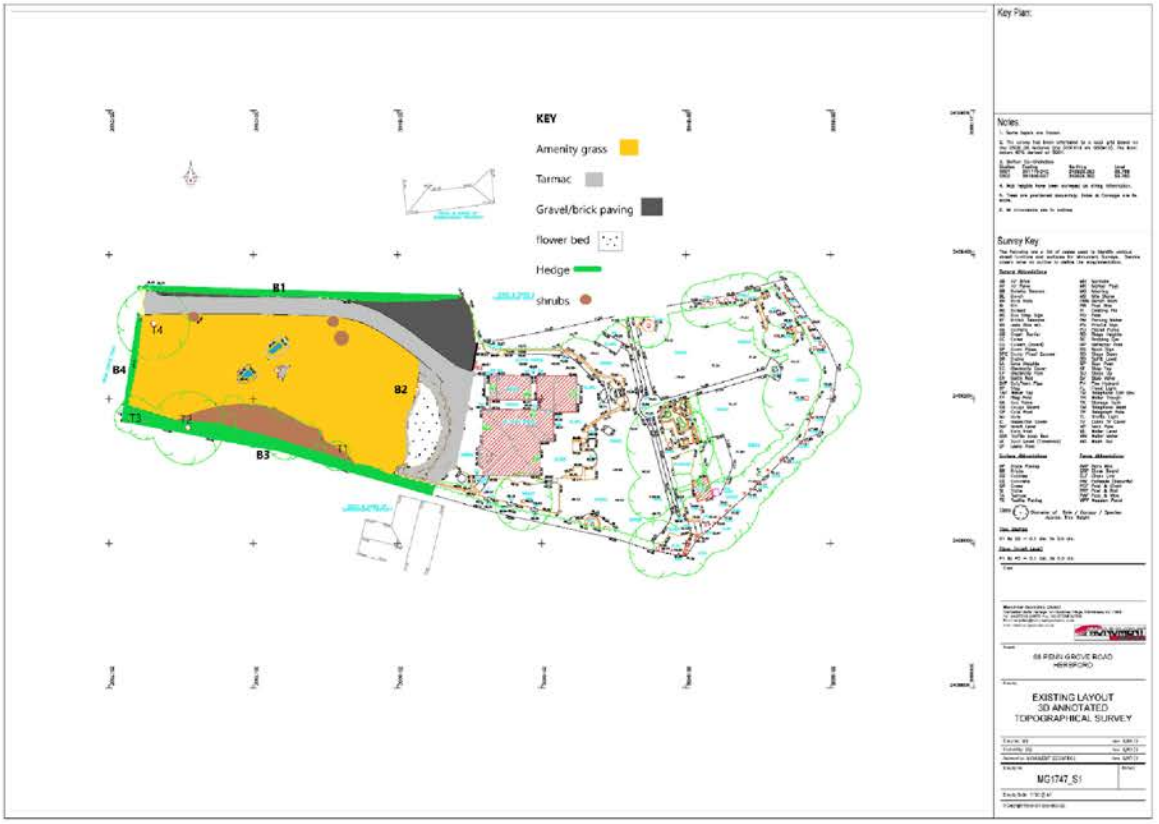
Licensing from Natural England

A Licence simply permits an action that is otherwise unlawful. A licence should be applied for if, on the basis of survey information and specialist knowledge, it is considered that the proposed activity is reasonably likely to result in an offence (killing, breeding site destruction, etc – see above). No licence is required if, on balance, the proposed activity is unlikely to result in an offence (this is from the great crested newt mitigation guidelines).

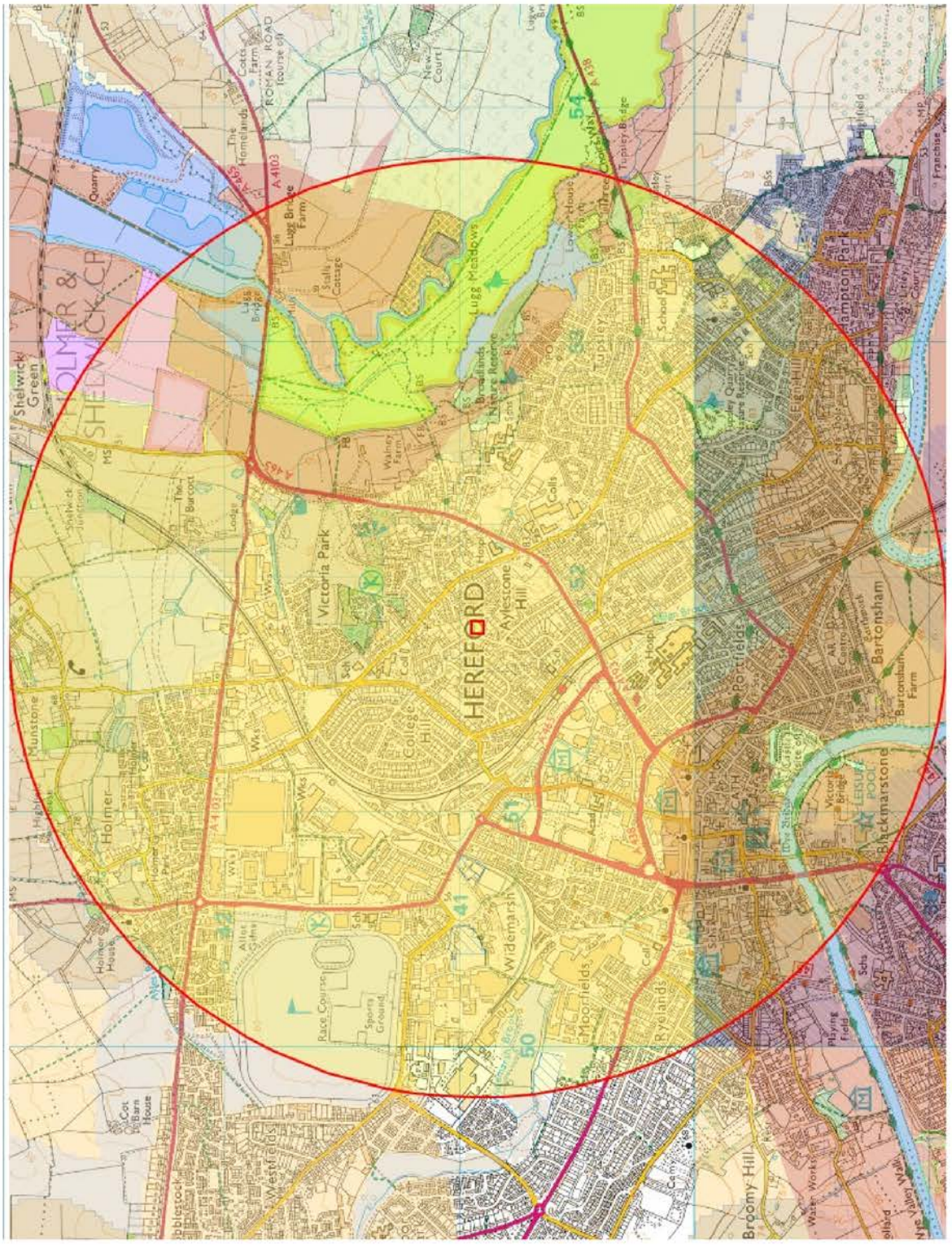
APPENDIX TWO PHASE ONE HABITAT SURVEY



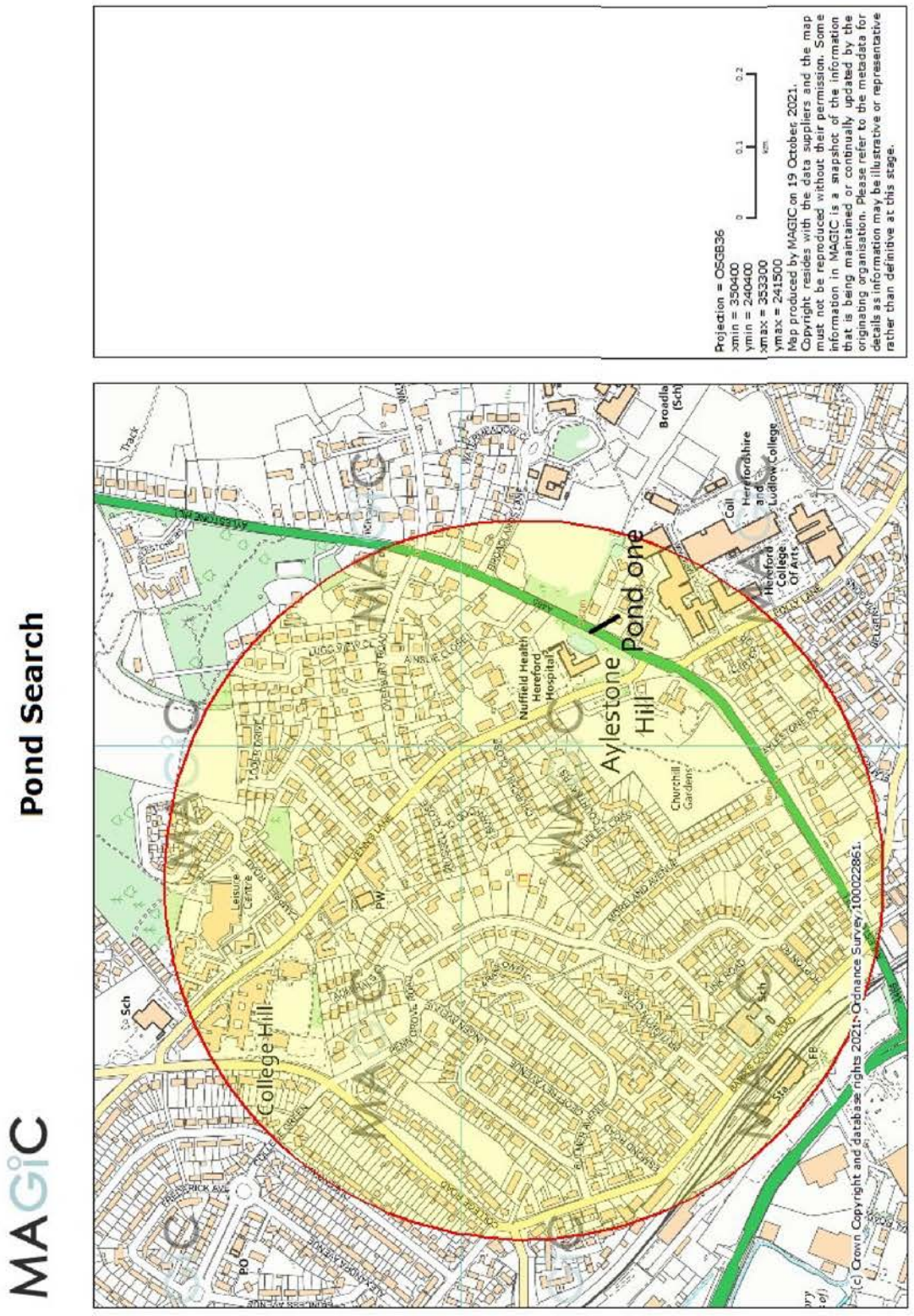
This phase one habitat plan has been drawn up on to the tree plan



APPENDIX THREE DESIGNATED SITE SEARCH



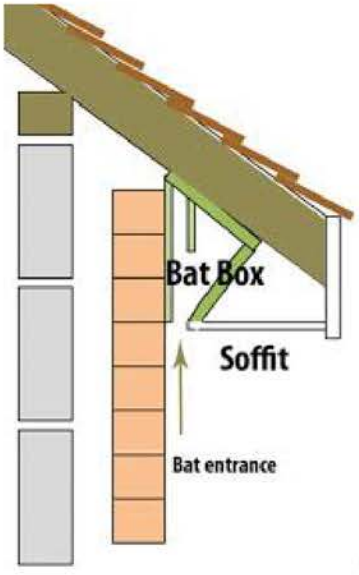
APPENDIX FOUR POND SEARCH MAP



Red ring shown as 500m radius from Site centre.

APPENDIX FIVE PROPOSED ENHANCEMENTS FOR WILDLIFE & LANDSCAPE

Restored *Wildlife Pond & Native species rich hedgerow & trees to be planted & boundary trees to be retained.*



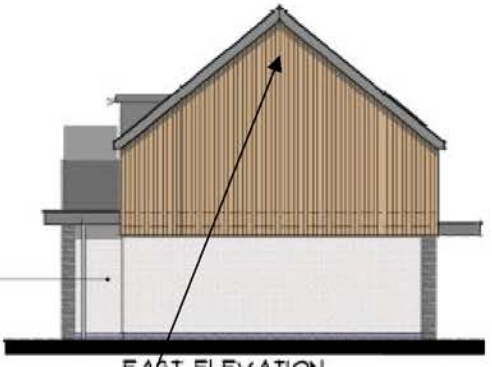
Soffit bat boxes & integral bat boxes see locations over the page on the elevation plan.

swift box

NORTH ELEVATION

WEST ELEVATION

SOUTH ELEVATION



EAST ELEVATION

Soffit bat box

eco habitat integral box in wall

The restored ponds shall incorporate the following designs

Designing your wildlife pond

The siting, depth profile and pond surrounds are of great importance if the pond is to be successful at attracting a range of wildlife.

Siting the pond

Where? An ideal place for a pond is on level ground, in an open, sunny area, the sunnier the better, and well away from any trees. To achieve a range of conditions, it may be beneficial to choose a spot that receives a little shade at some point during the day. A location that is already damp or water-logged is not really suitable, being at risk of constant flooding. An area that is too shady will inhibit the growth of essential oxygenating and other plants.

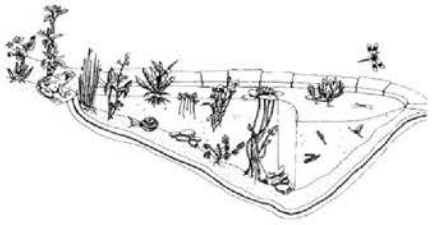
Pond profile

Depth. This is very important. To be attractive to wildlife, a pond should have sides with gentle slopes, not steep ones. If the pond is quite small, shallow sloping edges should be on one side at least. Extensive shallow areas 30cm wide and 4-20cm deep; especially to the south and west.
A deeper zone at a minimum 60cm depth and ideally 100cm or more.

Around the pond edges

Providing extra habitats around the edge of the pond will be of great benefit to wildlife. These can be created by: Placing stones, logs and tall plants in spots all around the pond edges. Allowing some long grass of other vegetation to grow up on at least one side of the pond. Building scalloped pond edges rather than a straight one - these will provide many different micro-conditions with variations in shade and depth and temperature. Best of all, creating an accompanying unsubmerged bog area to the north-north east side of you pond. (Details are given below)

For ease of maintenance and pond-watching, it is sometimes best to have one relatively formal edge to your pond, with a straighter edge and incorporating paving, gravel path or short turf. The size of the pond is less important than including the features outlined above into the design. Although larger ponds will generally support more wildlife a small garden pond will still be an effective home for many creatures.



Damselfly nymph *Freshwater shrimp* *Ramshorn snail* *Water boatman*

Choosing pond plants

Pond plants will oxygenate the water and keep it clear. Unfortunately many non-native aquatic plants readily colonisable from garden centres are invasive and will soon dominate the pond completely to the detriment of everything else. Carefully selected native species should remain in a relatively balanced state and will support more wildlife. Plants can be introduced to your pond approx. 1-2 weeks after the initial filling with water, when tap water nutrients such as chlorine and fluoride have evaporated. The best time to plant in is spring or summer when plants are actively growing. Plants can be planted into soil held in old string onion bags or baskets.

Four zones for plants

There are four "zones" in which pond plants may be grown; try to have plants in each zone. The four zones are:

1. Totally submerged (in deeper water)
   - oxygenating plants
2. Submerged but with floating leaves (also in deep water) - oxygenating plants
3. Emergent (in shallower area) and
4. Marginal (growing in the pond edge and bog areas.)

A useful rule of thumb is to provide one oxygenating plant per 100cm2 of open water.

The taller, emerging/emergent zone plants are better on the northern edge where they won't cast shade over the rest of the pond. In the wild, the four zones are not really distinct at all but merge into each other. Some marginal and emergent plants therefore are interchangeable.

Plants suitable for each zone, and plants to avoid, are listed below:

water soldier - RP

fringed lily - RP

Pond plant lists

Recommended Plants:

Submerged oxygenators
Spike Water Milfoil Myriophyllum spicatum
Hornwort Ceratophyllum demersum (pollution intolerant)
Shining Pondweed Potamogeton lucens
Horned Pondweed Zannichellia palustris
Fennel Pondweed Potamogeton pectinatus (pollution tolerant)
Water Starwort Callitriche stagnalis (pollution intolerant)

Floating-leaved
Water Crowfoot/Buttercup Ranunculus aquatilis (pollution intolerant)
Bladderwort Utricularia spp
Frogbit Hydrocharis morsus-ranae
Broad-leaved Pondweed Potamogeton natans (pollution tolerant)
Curled Pondweed Potamogeton crispus (pollution tolerant)

Emergent
Branched Bur-reed Sparganium erectum (tall; can be invasive, but a good alternative to Typha)
Amphibious Bistort Persicaria amphibium
Arrowhead Sagittaria aquatilis
Water Crowfoot Ranunculus aquatilis
Water mint Mentha aquatica (can be invasive; also strong scent deters some insects)
Flowering Rush Butomus umbellatus
Water Plantain Alisma plantago-aquatica (tall)
Water Forget-me-not Myosotis Scorpioides
Slender Tufted Sedge Carex acuta
Marsh Cinquefoil Potentilla palustris
Swamp gladiolus - good for pond invertebrates
Yellow flag iris Pseudacorus (can be a little invasive)

Marginals
Flowering Rush Butomus umbellatus
Lady's Smock Cardamine pratensis
Marsh marigold Caltha palustris
Purple Loosestrife Lythrum salicaria (tall; a wonderful bee plant)
Gipsywort Lycopus europaeus
Sedges sage and small
Meadowsweet Filipendula ulmaria (tall/ish; good for birds in autumn)
Brooklime Veronica beccabunga
Ragged Robin Lychnis flos-cuculi
Soft Rush Juncus effusus
Water Forget-me-not Myosotis scorpioides
Bungle Ajuga reptans
Water Avens Geum rivale (spreading)
Marsh Woundwort Stachys palustris (tall)
Great Willowherb Epilobium hirsutum (tall)
Hemp Agrimony Eupatorium cannabinum (tall)
Floxbane Pulicaria dysenterica
Rough grassland with Creeping Bent Agrostis stolonifera,
Marsh foxtail Alopecurus geniculatus
Fool's watercress Apium nodiflorum
Common Spike-rush Eleocharis palustris
Water pepper Persicaria hydropiper
Silverweed Potentilla anserina
Creeping Jenny Lysimachia nummularia (low growing ground cover)
Water Dock Rumex hydrolapathum (may be invasive)

Plants to AVOID at all costs:

1. Australian Swamp Stonecrop/New Zealand Pygmyweed Crassula helmsii aka Tillaea recurva
2. Water Fern Azolla Filiculoides
3. Parrot's feather/Brazilian watermilfoil Myriophyllum aquaticum
4. Floating Pennywort Hydrocotyle ranunculoides
5. Himalayan Balsam Impatiens glandulifera
6. Canadian Pondweed Elodea canadensis
7. Curly (Canadian) Pondweed Lagarosiphon major or Elodea crispus
8. Nuttal's pondweed Elodea nuttalii

Native plants that tend to become invasive; only recommended for larger ponds:

1. Floating sweet-grass Glyceria fluitans
2. Reedmaces Typha latifolia and Typha angustifolia
3. White water lily Nymphaea alba (pollution tolerant); usually prefers deep water 2m deep (could be grown in submerged pots)
4. Yellow water lily Nuphar lutea (pollution tolerant) (could be grown in submerged pots)
5. Fringed water lily Nymphoides peltata (could be grown in submerged pots)
6. Lesser and Greater spearworts, Ranunculus lingua and R. flammula (could be grown in submerged pots)
7. Bogbean Menyanthes trifoliata

Pond open for business: attracting wildlife

A wildlife pond may take over 5 years to become fully established. Certain animals can be encouraged to visit by providing particular features:

- A patch of unmown long grass, logs and stones bordering the pond - for frogs/ats, newts also butterflies.
- Floating leaved plants - for dragonflies and damselflies to lay their eggs upon.
- Logs and stones on a sunny open bank - that some dragonflies like to perch upon.
- Tall emergent plants with hollow stems - for damselflies and dragonflies to lay their eggs upon.
  These insects may take 3 years to mature, so need a relatively stable habitat with lots of other pond creatures to eat.
- Damp bare earth - which house martins and other birds will use to help build their nests.
- The plant Water Starwort - seems to be favoured by newts for egg laying.
- Shallow areas - for birds to bathe in; the sound of dripping water attracts some warblers.
- A nearby compost heap - may be used by grass snakes to lay their eggs in if you are lucky.
- Night-scented plants like honeysuckle and the provision of bat boxes - may attract bats.
- A beach or unclean wire hedgehog ramp - so thirsty hedgehogs can have a drink (or a swim) without getting trapped.
- Meadowsweet - will be perched upon and the seedheads eaten by finches later in the year.
- Duckweed - attracts frogs by small early in the year.

dragon nymph - Wildstock

Important a wildlife pond should NOT have any fish, nor pumps, filters or fountains. Fish will eat all the other wildlife; pumps will suck in and destroy all the smaller creatures that other wildlife depends upon for food.

frog in creeping jenny - R. Burkmar

dragonfly - Wildstock