

# Creating networks of high quality ponds for the UK Pond HAP

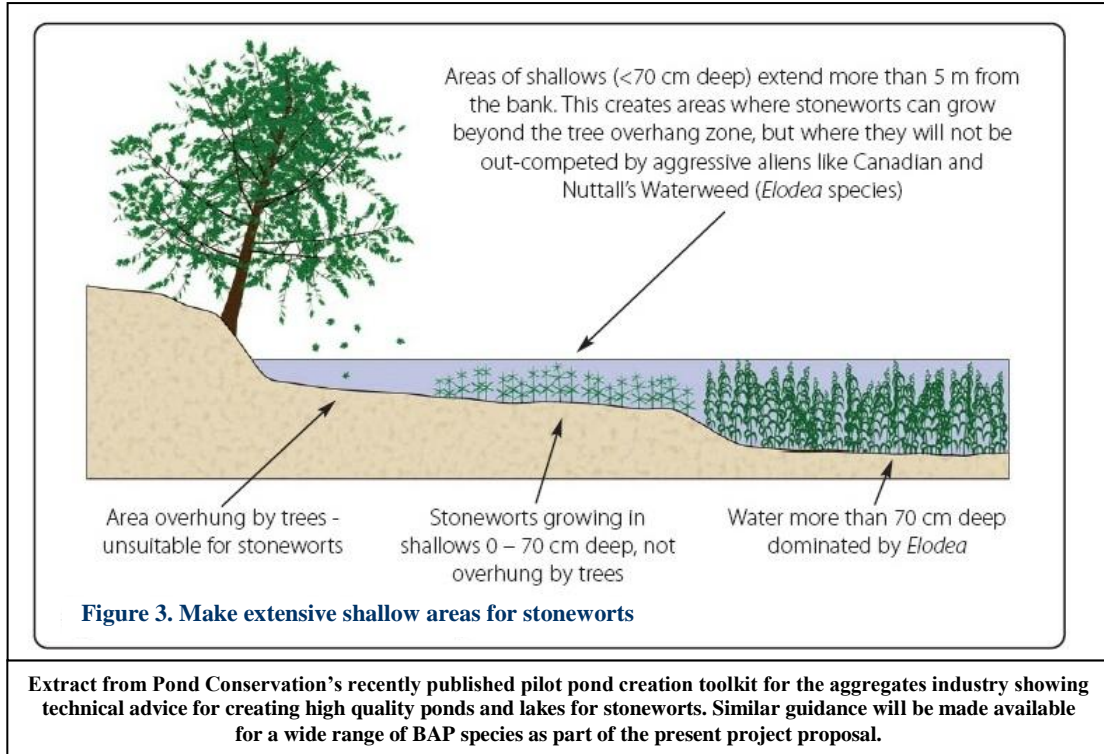
## Application to The Tubney Charitable Trust



New pond created at the RSPB Lewes Brooks reserve ((W. Sussex) for the puzzled skipper water beetle (*Laccophilus poecilus*). Lewes Brookes is the last known UK site for this species.



New pond created at Hothfield Common SSSI (Kent) to provide habitat for acid bog plants now very scarce in Kent including bog asphodel, marsh St John's wort, round-leaved sundew and common cotton-grass.



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# Creating networks of high quality ponds for the UK Pond HAP

## *Application to The Tubney Charitable Trust*

### 1. Summary of project aims

This four-year project aims to create a network of 5000 new high quality ponds in England and Wales. In doing so it will bring a significant and lasting increase in aquatic biodiversity and water quality across UK landscapes.

The project will:

- create *5000 ponds in England and Wales* providing, by 2012, over 50% of the ponds needed to reach the 2015 target for high quality pond creation under the new Pond Habitat Action Plan (9300 high quality ponds by 2015).
- contribute to *protecting and increasing populations* of over 40 Biodiversity Action Plan (BAP) species, and many other species of conservation concern.
- begin the process of *reversing* a century's *decline* in pond numbers and quality.
- create *sustainable patches of clean water* in many landscapes: providing a critical biodiversity resource, which is now worryingly rare in England and Wales.
- create ponds that will become priority habitats of European significance under the *Habitats Directive*.
- Start taking action now to help *climate-proof* our freshwater landscapes.

In future years our plan is to build upon this project so that, ultimately, the UK again supports at least one million ponds: the number present at the beginning of the 20<sup>th</sup> century. This long-term target is built into the aims of the new Pond Habitat Action Plan, the Wetland Vision for England and Pond Conservation's own strategic vision.

## **2. Project objectives, activities and expected results**

### **2.1 Project objectives**

The project has seven main objectives:

1. To encourage, facilitate, train and support staff in partner, and other, organisations to make 5000 pristine new ponds in England and Wales. To do this we will work with major land managing organisations (particularly Defence Estates, Ministry of Justice, National Trust, Forestry Commission, Environment Agency, RSPB) and others to create large numbers of ponds on their estates.
2. To ensure a step change in wider stakeholder appreciation of the importance of pond creation for biodiversity, and promote translation of this knowledge into practical pond creation.
3. To create and disseminate toolkit materials that will support partners and others through all stages of pond creation (e.g. information on planning, location, water sources, design, excavation, after-care).
4. To provide on-the-ground support from our project officers to facilitate pond creation schemes.
5. To work with specialist partner organisations (e.g. Herpetological Conservation Trust, RSPB, Buglife), national experts and site managers to target 20% of the ponds created (about 1000 ponds) to benefit populations of approximately 40 BAP species.
6. To provide funds that will ensure the BAP species ponds can be created in their ideal locations.
7. To monitor, evaluate and enhance project success by recording the location of new ponds, assessing their quality, and benefiting from lessons learnt.

### **2.2 Pond Conservation's objectives**

The project fits closely with Pond Conservation's core objectives.

Our charitable aims are: to promote the conservation, creation and public understanding of ponds, wetlands, catchment systems and other water habitats and their wildlife and historical features.

Our organisation's 10-year objective is: "to protect and increase the freshwater biodiversity of landscapes, using ponds as a major focus". We aim to achieve this objective through a series of large-scale projects that deliver biodiversity benefits.

*'Creating networks of high quality ponds for the UK Pond HAP'* is the first of these on-the-ground projects. It is also the most important, because we believe that creation of new clean-water ponds is the simplest and most cost-effective way to deliver significant freshwater biodiversity gains across the UK.

### 2.3 Quantified activities

By the end of the project, the activities we expect to have undertaken are:

1. Engagement with around 50 major partner and other organisations to ensure their active involvement in creating high quality ponds at national and/or regional level (see list of known and expected partner organisations, the “makers” and “shakers” in Appendix 1).
2. Production of publicity materials to raise awareness of need for high quality pond creation in: (i) the national media, (ii) sectoral press (BBC Wildlife, British Wildlife etc), (iii) at least 20 articles in partner and other organisations’ newsletters and (iv) in our own quarterly newsletter.
3. Creation of a pond creation tool-kit with a suite of resources (about six core 10 page guides plus species-specific leaflets, laminates, website frequently asked questions and step-by-step guide) to support pond creation disseminated as hard copies to partners and/or via our own and others web sites.
4. Up to 60 training courses run for partner and other organisations’ staff (total at least 800 people).
5. At least 15 talks given at relevant organisations’ conferences or annual meetings (e.g. Defence Estates, Forestry Commission, Country Land & Business Association, Herpetofauna Workers Meeting).
6. A national conference (or series of regional workshops) in year 3 to promote information sharing amongst pond makers.
7. Provision of on-the-ground support at 500+ sites (note most sites will be complexes or mosaics with more than one pond).
8. Creation of about 5000 ponds of high quality potential.
9. Of the 5000 total, c1000 ponds (20%) are targeted to support populations of at least 40 BAP species. A list of the BAP species we expect to work with is given in Appendix 2.

The annual targets are:

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Total</b>
HAP countryside ponds	100	900	1600	1400	<b>4000</b>
BAP species pond	25	145	450	380	<b>1000</b>

10. Provide funding for digging the 1000 ponds targeted for BAP species.
11. Registration of all known sites on a database.
12. Post-creation quality assurance of 10%-20% of sites.

## 2.4 Expected results and enduring difference

By the end of this project, England and Wales will have many thousands of new clean-water ponds. This network of pristine freshwater habitats will sustain and increase the populations of freshwater species, including around 50 BAP species, in the long term.

There are currently about 400,000 ponds in Britain. Together, these small waterbodies are exceptionally important for biodiversity: they support populations of two-thirds of the UK's freshwater species, including at least 50 BAP species and many other species of conservation concern. Our work provides clear evidence that the best wildlife ponds occur in areas where pond catchments are semi-natural (e.g. non-intensively managed grassland, heathland, woodland, moorland). One in five of these ponds support a Red Data Book species.

Water pollution is now pervasive in all waterbody types: with almost all lowland streams and rivers, and 70% of ponds, now degraded. Even in the uplands pollution is widespread. Isolation is also a critical factor: over the last century about 70% of all rivers in Britain have been channelised, allowing extensive drainage of floodplain wetlands; the numbers of ponds in England and Wales have declined by nearly three-quarters, from 800,000 to the present total of 250,000. Together, these impacts pose major threats to our freshwater wildlife, and there are significant concerns that, without action on-the-ground, species and communities will continue to decline irrevocably.

It is very hard to significantly improve stream, river, ditch or lake quality. To do so, enormous investments in time and capital are usually needed: in improving sewage works and controlling septic-tank discharges, in treating road run-off, and in changing farming practices across whole catchments. Given the scale of these problems, the level of investment needed and uncertainties about the effectiveness of many of these practises, it is unlikely that widespread and significant improvements in water quality will occur in these waterbodies in the near future.

This is not true of ponds. Ponds have small catchment areas and because of this it is possible to *instantly create new clean ponds* with semi-natural catchments in *all* parts of Britain, even in intensively managed agricultural landscapes. We have shown that these new ponds can provide clean-water habitats, which rapidly colonise with plants and animals, including uncommon species, now threatened in other freshwaters. Since ponds support many species that also make use of streams and rivers, by creating this new freshwater resource we add to the freshwater biodiversity resource of the landscape as a whole.

In summary then, the enduring legacy of the project is that, by creating many thousands of pristine new ponds, in partnership with many organisations, we will:

- Begin to reverse the long-term trend of losses in pond number and quality: providing new habitat for freshwater, semi-terrestrial and terrestrial species.
- Create patches of *high quality* water in degraded landscapes where this resource is at a premium.
- Create a wide range of *different types of pond*: seasonal; permanent, grazed, woodland, grassland etc – a rich mix that is critical in maintaining and adding biodiversity.
- Increase connectivity between ponds - reducing inter-waterbody distance - benefiting metapopulations of many plants, invertebrates, amphibians, birds, bats and other mammals.
- Start taking action now to help “climate-proof” the freshwater landscape.
- Bring a step change in understanding of the importance of small waterbodies for freshwater biodiversity amongst our many partners, and others, which will persist beyond the life of the project.

### **3. Significance of project**

#### **3.1 Contribution to biodiversity targets**

The project will contribute to biodiversity targets through provision of (i) new priority ponds, (ii) new habitat for BAP species, and (iii) contributions to other national plans and targets.

Specifically:

##### *Priority habitats*

- Delivery of Pond Habitat Action Plan (HAP) target 4: the work of our project, creating 5000 ponds in England and Wales by 2012, will deliver just over 50% of the new high quality ponds needed to reach the 2015 target for pond creation under the new Pond HAP (Target 4: create 9300 high quality ponds by 2015).
- Contribution to Pond HAP Target 3 (“restore ponds to priority status to deliver Species Action Plan targets”): for great crested newt specifically, the project will manage existing ponds that are below priority status to make them suitable for great crested newts. The project will manage about 250 ponds over 4 years, half of the new annual target for this species (note that an updated target will shortly be posted on the Biodiversity Action Reporting System).

##### *Priority species*

- Approximately 1000 new ponds will be specifically targeted to protect and increase the populations of around 50 Biodiversity Action Plan (BAP) species, and many other species of conservation concern, that make use of ponds. A list of the species, with the Biodiversity Action Reporting System target or the Biodiversity Reporting & Information Group species priority action that will be addressed, is given in Appendix 2.

##### *Contribution to other targets and plans (national, regional, local)*

- National: At a national level the project begins delivery of the Wetland Vision for England’s pond target: to double the number of ponds over the next 50 years.
- Regional: The project will help deliver existing Regional Biodiversity Forum targets as well as new targets that will be developed regionally as Priority Pond targets are added to the biodiversity planning process.
- Local: Some LBAPs already have pond creation targets. Now that national pond HAP targets are in place, many more targets will be set up. The project will be instrumental in working with LBAPs at an early stage of this process, which is likely to benefit both LBAPs and the national Pond HAP.

#### **3.2 Geographical limits of the project**

The project covers England and Wales: an area that we can cover with the 5.3 FTE staff that will be in post. Our organisation already has well-developed projects and programs with regional staff located in both countries.

#### **3.3 Location: why is the project in the right area to benefits species or habitat?**

A critical aim of the project is that new ponds will be located in areas that drain semi-natural catchments, to ensure good water quality in perpetuity. The availability of a permanent clean supply of water eliminates many of the management problems that typically face ponds (e.g. lack of submerged plants, excessive growths of algae, turbid water, dense growths of duckweed). Provided that they are unpolluted, ponds do not automatically need management to be good for

wildlife because all successional stages are exploited by one or another wildlife group. Therefore, providing clean catchments ensures that high quality species assemblages are maintained in the long term.

Within these semi-natural catchments we will have two strategies for locating new ponds:

1. *HAP Target 4 ponds*: 4000 ponds will be spread across a wide range of landscape types owned or controlled by our partners and others - to create a mix of pond types that is critical in maintaining and adding to freshwater biodiversity. Additional information on the principles underpinning the location of these ponds is given in Appendix 3a.
2. *BAP species ponds*. The aim is to locate these ponds where they will help to maintain and extend functional metapopulations of each species. The precise locations of these ponds will be chosen in discussion with species experts to maximize the potential for colonization by the species concerned. It will be critical that sites are appropriately managed to ensure the species' long-term sustainability. For example, many BAP pond species require grazing to create disturbance or disperse spores or seeds (e.g. Tassel Stonewort, One-grooved Diving Beetle). As with our wider countryside HAP ponds, these waterbodies will typically be created as a mosaic/network of ponds giving greater potential for population sustainability in the long term. Appendix 2 gives examples of locations, already discussed with partners and others, which are being considered for pond creation.

### **3.4 Independent expert assessment of the project**

An independent assessment of the project's environmental significance is provided Alistair Driver (National Conservation Manager, Environment Agency) and by Dr Stewart Clarke (Senior Freshwater Ecologist, Natural England) (see Appendix 3b).

### **3.5 How we will sustain and enhance the project in the long-term**

There are two elements to sustaining and enhancing the project in the long-term: (i) sustaining the ponds and (ii) sustaining the project initiative.

#### *(i) Sustaining the ponds*

There is a common perception that ponds have to be managed to retain their conservation value. Our research, and that of others, shows this is not true.

Succession, itself a natural process, is benign if sediments are unpolluted and all stages of succession provide valuable habitats: thus new ponds can support important early colonising species, which are gradually replaced by mid and late succession species. Ultimately succession produces, usually after 100s to 1000s of years, not dry land but temporary ponds: an important and highly threatened habitat type, many of which persist for millennia. Further information about pond succession and the longevity of ponds that will be created by the project is given in Appendix 3c.

#### *(ii) Sustaining and enhancing the pond networks initiative*

It is easy to say, but never the less true, that the project will persist because it will create a step change in understanding of the importance of pond creation. This will happen because of: (a) the extensive awareness-raising associated with the project, (b) training given to a very wide range of partners, (c) information materials becoming much more widely available, (d) through recognition of the role of new ponds in helping to climate-proof freshwater biodiversity and (e) embedding pond creation into (i) our partner's strategies (ii) the planning system, (iii) water management programmes and (iv) biodiversity networks.

Our view is that this legacy will be considerable. However, it will not be sufficient to achieve our long-term aims and, for Pond Conservation, this project is the beginning of a long-term process. Specifically, we will develop elements that will ensure continuation of the project: (i) development of the Million Ponds programme into other areas of the UK (ii) maintenance of a network of project officers in England and Wales. Further brief information about these two activities is given in Appendix 3d.

### **3.6 Climate change: outline potential impacts of climate change on the species and habitats that the project is targeting**

Ponds, like other shallow water habitats (headwaters, streams, ditches) are particularly vulnerable to climate change. In general, the expected pattern of warmer, wetter winters is likely to maintain both seasonal and permanent ponds. Drier summers are likely to mean that a higher proportion of ponds become semi-permanent or seasonal.

The ecological impacts of such trends are widely acknowledged to be difficult to predict and are not inevitably disastrous: semi-permanent ponds, for example, are often rich in invertebrate species and are excellent amphibian habitats: it is assumed because of the occasional elimination of fish predators. Reduction in the hydroperiod of seasonal ponds may be more of an issue however. The Defra Lowland Pond Survey showed that around 40% ponds are seasonal (i.e. summer dry), suggesting that a very large proportion of ponds could be substantially modified by climate change. Changes at a species level are likely to be similarly variable and difficult to predict: Appendix 3e provides more detail.

In the light of uncertainty about the effects of climate change, a recent working group headed by Defra has made suggestions for “Climate Change Adaptation Principles” (currently in draft) that will feed into the new England Biodiversity Strategy. Our project directly addresses all five of the key suggestions for climate-proofing landscapes and species made by the working group, including the foremost suggestion: to *take action now* to climate-proof landscapes on-the-ground (see Appendix 3f for more details).

### **3.7 Building on existing knowledge and experience**

Pond Conservation has a very strong background in conservation science. Over the last 20 years we have looked at the biodiversity of freshwater habitats across the UK including rivers, streams, ditches, canals, lakes and ponds. During this time we have been directly involved in undertaking and evaluating methods for protecting both freshwater habitats and species including river and ditch restoration, canal management, small waterbody creation and agri-environment landscape protection measures.

Based on these data, our conclusion is that creating extensive networks of new clean waterbodies is likely to be the simplest and most cost-effective way of protecting and increasing freshwater biodiversity in the UK. In the short term, we think it is the only viable way to make a significant difference to the UK’s freshwater biodiversity.

The project builds on all elements of Pond Conservation’s work. Specifically:

- It builds on our research showing the importance of small water bodies for protection of freshwater biodiversity, and how we can effectively create clean biodiverse water habitats (see for example Williams *et al.* 2004 and 2007: abstracts attached in Appendix 3g).
- Practically, it builds on Pond Conservation’s considerable experience of designing high quality ponds which we have trialed and monitored over the last 10-15 years.

- Organisationally, it builds on our successful development of multi-partner projects and our approach to on-the-ground networking with many different organisations.

### **3.8 Similarity to other projects**

Million Ponds is a unique project in the UK, without direct analogues. In terms of scope, the nearest analogy is the Great Fen Project in that both projects aim to have a nationally significant impact on wetland biodiversity. On the continent, the project mirrors work done by our colleague Lars Briggs, a dynamic amphibian ecologist who has initiated large-scale pond creation projects around the Baltic, from his native Denmark through Poland and Latvia, to Estonia. Currently he is working with the Stiftung Naturschutz Schleswig-Holstein, the largest nature conservation foundation in northern Germany, on a major pond creation programme (see [www.life-bombina.de/index.php?id=7&L=3](http://www.life-bombina.de/index.php?id=7&L=3)). Further information about pond creation activities in the UK is given in Appendix 3h.

### **3.9 Monitoring and evaluation**

Direct monitoring of the project will be undertaken: (i) through the central co-ordinator and regional project officers, who will be in contact with partners and others making new ponds and (ii) by direct partner reporting (e.g. LBAPs, SAPs, Ministry of Defence, Natural England environmental land management teams) to give us minimum estimates of new pond sites we directly influence. To assist reporting we will use the web-based forms of the National Pond Monitoring Network (see [www.pondnetwork.org.uk](http://www.pondnetwork.org.uk)).

We will evaluate success through appraisal of a sub-sample of ponds (10-20%), including:

- (i) on-site check list surveys undertaken by Project Officers, and
- (ii) a smaller number of more detailed biotic surveys of 2-3 year old HAP and BAP species ponds.

In the longer term, the wider impact of the project will be monitored through the Countryside Survey.

Monitoring methods are discussed further in Sections 4.1.4 and 4.2.4, with more detailed information in Appendix 3i.

### **3.10 Disseminating lessons learnt**

#### ***Within the organisation***

Disseminating the many lessons learnt during the project within our organisation will help to deliver project success. Effective ongoing internal dissemination will build on our current organisational practices, which work well. This includes:

- Thorough staff induction
- A policy of active information sharing within the organisation
- Use of a dedicated internal notice board on our website
- Monthly meetings for all regional staff.

#### ***Dissemination beyond the organisation***

External dissemination is one of the core tools of the project, and we will employ a variety of methods for disseminating lessons learnt both during the four-year project and on its completion. This will include:

- Regular updating of training course content
- Annual updating of tool-kit materials during the project
- A national conference (or series of regional workshops) in year 3

- Regular review of web-based materials (e.g. FAQs, case-studies)
- Information in newsletters to partners and others.

Further information about the approach to disseminating lessons learnt is given in Appendix 3j.

## **4. Strategy for achieving objectives**

The main objective of the project is to make large numbers of high quality new ponds in England and Wales. To do this we will employ a national coordinator, who will be responsible for the day-to-day management of the project, and four regional project officers, who will encourage, facilitate, train and support staff in partner, and other, organisations to create high quality ponds. A highly experienced technical advisor will provide additional support (0.5 FTE in year 1, dropping to 0.2 FTE in years 2-4).

Project delivery will focus on two types of pond: (i) Pond HAP ‘high quality potential’ ponds, which will provide new clean water habitats in the countryside and (ii) ponds for specific BAP species. Delivery of each is discussed below.

### **4.1 Pond HAP countryside ponds**

The aim is to create 4000 ‘HAP countryside ponds’ in England and Wales in clean unpolluted catchments, mainly by working with major landowners and managers who will create significant numbers of ponds as part of their land management programmes. The four programme stages are: (i) enthusing and engaging with stakeholders, (ii) training and empowering partners (iii) facilitating pond creation on-the-ground, and (iv) monitoring and learning.

#### **4.1.1. Enthusing and engaging with stakeholders**

One of the most important roles for our staff is to directly engage with stakeholders to: provide information about the project; encourage action on-the-ground and embed pond creation into organisational policies.

We know this is an effective way of working because we have trialed it regionally in our recent 2007/8 Aggregates Levy Sustainability Fund project “Barriers and opportunities to pond creation on aggregate sites”. Here we talked to a wide range of stakeholders involved in pond creation on aggregate sites in Oxfordshire to identify, and then remove, barriers to high quality pond creation on minerals sites. Stakeholders included: county planners, county ecologists, site owners, site managers and ecological consultants. In all cases, the most significant reason that ponds were not commonly created on aggregate sites was because stakeholders did not know that ponds were important ecologically or that creating clean new ponds was valuable. As a result of the project, and identification of ponds as a priority habitat in the UK BAP, more pond creation is now embedded into current and future aggregate site restoration in Oxfordshire. Further, a local aggregate company staff member has taken the Oxfordshire trial to the Quarry Products Association for roll-out at a national level as part of the current project.

We plan to influence organisations and individuals in similar ways for the current project. The groups we need to engage can be divided into two broad categories:

- (i) the “makers”: those with available land and the means to create ponds
- (ii) the “shakers”: those who can influence the makers e.g. policy makers, planners, advisors.

In order to focus on delivery we will predominantly work with makers in the current project.

#### **Engaging the “makers”**

There is potentially a huge number of high quality pond makers in the UK. The most critical makers for us are big landowners and managers with large tracts of semi-natural land where we want to target high quality pond creation. This includes Defence Estates, the Ministry of Justice, the National Trust, the RSPB and the Forestry Commission. This group also includes the Environment Agency who have a major programme of habitat creation work in place. To ensure project success, these landowners/managers are already partners in the project, and we have

developed (or are developing) Memoranda of Understanding (MOUs) and other agreements with them to embed programmes of high quality pond creation within their organisational strategies. The completed or draft MOUs are shown in Appendix 4.

There are many other “makers”, including farmers and community groups, who will also be interested in creating high quality ponds. The makers in these groups are more dispersed, and our aim is that we gain their awareness mainly through the (i) media (national and sectoral), (ii) through sectoral organisations (e.g. National Farmers Union, Wildlife Trusts) and (iii) through the influence of shakers (see below).

### ***Engaging the “shakers”***

“Shakers” are influencing organisations that advise or direct but do not actually own land or directly make ponds (e.g. Farming & Wildlife Advisory Group, Regional Biodiversity Forums, local authority planners, Internal Drainage Boards etc - see list in Appendix 1). Our national coordinator and regional staff will make contact with relevant ‘shakers’ at both national and regional levels (respectively) to ensure that pond creation is high on their agendas and that HAP pond creation is appropriately embedded in policy.

### ***4.1.2. Training and empowering***

A significant part of the work programme for the national coordinator and regional staff will be running training courses for stakeholders to help them make high quality ponds. We are doing this because our land owning partners have told us that this is one of the key resources that will help them.

For partners, of most practical benefit is training of staff responsible for undertaking pond creation on-the-ground, or those directly advising others e.g. (i) our land-owning partners staff and site managers (e.g. Defence Estates Environmental Support Team staff, RSPB reserve wardens, National Trust wardens) (ii) key “shakers” (e.g. FWAG officers, Regional Biodiversity Coordinators, etc). Training courses will be a mix of simple principles, site visits and practical exercises that experience from previous training courses suggests works best.

Training courses will be supported by a wide range of toolkit materials which stakeholder consultation for current and previous projects has also shown is particularly desirable. The toolkit will include: information about reasons to create ponds (including guidance for planners), checklists of the stages of planning a project, pictorial design guidance and a step-by-step guide to making ponds. Materials will be available as leaflets, printed and down loadable from our website, and as laminates for field staff.

We want high quality pond creation to be taken up by many more organisations and individuals than we can train directly. For this reason the pond creation tool-kit will also be available as a web-based tutorial which will take browsers through all stages of making high quality new ponds. We will also add a frequently asked questions area to our website to assist individuals with pond creation problems.

### ***4.1.3. Facilitating on-the-ground work***

The regional project officers will actively work on-the-ground with our partners on larger projects (5-10+ ponds), and those projects that are likely to help to create a strategic vision at landscape scale. To ensure a strong focus on delivery of large numbers of high quality ponds we will prioritise the larger schemes. Single pond enquiries, and the enquiries which we inevitably receive about garden pond creation, will be encouraged through our web-based materials and telephone enquiry service.

#### **4.1.4. Monitoring and learning**

We will need to know the number of BAP ponds created and to assure ourselves that the new ponds meet the standard required for high quality ponds. Because of the large number of sites involved we will use a number of techniques to gather this information:

1. Project staff: staff will maintain records of the numbers of ponds in progress and completed with which they are associated. They will also undertake quality assurance assessments, and record lessons learnt. Pond number targets will be built into staff job descriptions.
2. Partners and others: will put systems in place to ensure these data are gathered. For example, MOUs will include a requirement to report back on ponds made to a coordinator in the partner organisation. We will request that Regional Biodiversity Forums and LBAPs assist in collection of data on priority pond creation, although this will not be essential to the project.
3. Training courses: a requirement of attending the training courses, will be an agreement from participants to gather and collate information about the ponds created, and provide this information to us.
4. Web based forms: we believe the project will stimulate the creation of high quality ponds which we will not be directly involved in. We will invite people to complete simple web-based forms describing location, pond hydrology and other key features of high quality ponds. We will check a random sample of these sites with field visits to assess the proportion that truly fit our criteria.

Information and data will be collated and analysed by the national coordinator and technical advisor. Analysis will show which approaches are most effective in delivering high quality sites. This may influence the focus/deployment of regional project officers in the last one to two years of the project.

## **4.2 BAP ponds**

The aim is to create 1000 ponds for around 40 BAP species in targeted locations for those species. Because of the large number of species involved, the most cost effective way to achieve this objective is for our project officers to work in collaboration with groups and individuals with specialist knowledge of BAP species and, in some cases, responsibility for delivering Species Action Plans.

### **4.2.1. Finding sites/arranging pond creation/getting the right design/setting it up**

Our current experience in designing ponds for BAP species, including stoneworts, water vole and crayfish, suggests that the most effective way of working will be through a partnership where our regional project officers provide knowledge of pond creation, and the time to ensure their implementation through all stages from planning to pond creation. Relevant species experts will provide specialist knowledge in terms of (i) species requirements in terms of pond design and location (ii) identification of appropriate sites (iii) contacts/liaison with existing site owners, and in some cases, (iv) assistance with post-project evaluation. For most species, specialist information sheets will be created to summarise design and location principles for new pond sites, facilitating future creation schemes by others.

Amphibians and one reptile, the grass snake, are an important target group for the project, with four Priority Species wholly dependent on ponds, and the Grass Snake making extensive use of ponds as a component of its habitat. The Herpetological Conservation Trust (HCT), who are lead partners for the amphibian and reptile Species Action Plans, already have expertise in pond creation, and so to ensure full partnership in the current project, HCT will employ regional project

officers (equivalent to 1 FTE) to provide specialist amphibian expertise. This work will use both pond creation and pond management as tools to build towards BAP targets for amphibians: particularly Great Crested Newt, where the target is creation of 50 new ponds / year and management of 75 ponds / year.

#### ***4.2.2. Funding BAP species ponds***

Discussion with BAP species lead partners and other specialists has identified “money to dig the ponds” as a critical barrier in pond creation projects for many species. Thus, in many cases appropriate sites and willing landowners have already been identified, but there are no available funds to hire equipment to carry out the work. To break this barrier, the current project will raise a pond-digging fund, specifically to fund creation of new sites for BAP species, estimated at an average of £750 per pond. This is equivalent to the hire of one excavator and 1 dumper plus their drivers for 1 day. It is envisaged that, at most sites, complexes of 3-5 ponds will be created, over a period of 2-3 days. Establishment of the pond digging fund is in progress and, in particular, we have had discussions with several of the larger landfill tax credit schemes to support this fund. Biffaward, in particular, have agreed in principle, at board level, to support a project application of up to £500,000 to fund creation of the BAP species ponds.

#### ***4.2.3. Delivering BAP species ponds***

In most cases, BAP ponds will be created and evaluated under the direct supervision of our regional officers with appropriate help from species experts and site managers.

The main exceptions are the amphibian and reptile ponds, where a different model will be adopted based around the county Amphibian and Reptile Groups (ARGs). There are currently almost 60 ARGs in the UK. Most of these groups currently focus on herptile monitoring. However, many groups and individuals have expressed interest in more active creation and management of ponds to aid species protection. The ARGs, with their local knowledge, are an ideal way to identify sites and facilitate pond creation and management for the widespread amphibians like Great Crested Newt and Common Toad. HCT staff will support ARGs in the creation of ponds for amphibian and other BAP species. Most will be created using excavators, but pond management is likely to be mainly undertaken by volunteers.

#### ***4.2.4. Monitoring and recording species ponds***

Site monitoring will be undertaken by our regional officers with, where appropriate, assistance from species specialists. We will seek to ensure that species experts and site managers undertake longer term monitoring. Monitoring will, in any case, form part of the BAP assessment process already established for each species. For herptile sites, ARGs will be responsible for post project appraisal in the years after creation.

## **6. Work Plan**

The work plan for each year is given below, together with a table of activities and objectives.

### ***Year 1***

In the initial three months of the project, the project coordinator and technical advisor will set up the project protocols and complete much of the development of the pond creation training and support materials. The coordinator will also agree programmes of training and pond creation with major partner “maker” organisations.

Regional project officers will start in month 4 of the project. 10-15 days in this month will be spent in internal induction, ensuring full training of our staff in all necessary skills and protocols.

We expect to formally launch the project in month 5, once staff and support materials are in place. The remainder of the year will be spent by the coordinator and regional project officers in (i) agreeing and negotiating sites for BAP species pond creation, in association with species experts and site managers (ii) discussion with key stakeholders e.g. regional planners (iii) training staff or volunteers in partner and other target organisations in pond creation techniques (iv) overseeing and monitoring the first sites created.

By the end of year 1, our staff will have trained staff and volunteers in over half of the large “maker and shaker” organisations we wish to target, and we will have prepared and agreed BAP species sites suitable for Biffaward flagship project and other land-fill tax funding.

### ***Year 2***

The second year will focus on getting ponds created in large numbers. The national coordinator and regional project officers will complete training courses in pond creation for most large maker and shaker organisations. For larger schemes, they will also provide on-the-ground support. The national coordinator, BAP species experts and regional coordinators will develop pond creation guidance for each species. Regional officers will work to get the first set of BAP species ponds dug. They will also work with landowners and managers to agree new sites for pond creation in the following year.

Our communications manager will maintain a high project profile with stakeholders, the sectoral press and newsletter articles in partner and other organisations’ in-house newsletters.

The technical advisor will make detailed site monitoring visits, and regional officers will feed pond creation data back to the national coordinator for analysis and incorporation into the second year report.

Towards the end of the second year/beginning of year 3 we will update and extend our pond creation materials, using knowledge gained during the project to date.

## **Year 1 Activities and objectives**

### **1. Project management and development**

- Recruit southern regional project officer (months 1 and 2)
- Develop detailed work programme (months 1-3)
- Set up project steering group (meetings twice annually, month 3 and month 9)
- Develop internal project protocols: management, Health & Safety, monitoring (months 1-4)
- Staff induction programme developed and undertaken (month 4)
- Set up financial systems to administer pond digging fund (months 3-5)
- Project staff meetings (monthly).

### **2. Communications**

- Develop tool-kit (months 1-5)
- Develop publicity materials and articles (months 1-5) (about 5-10 articles in conservation magazines/journals (e.g. British Wildlife, Birds (RSPB), Sanctuary (Defence Estates))
- Launch project, and publicise widely at national and regional level (month 5 onwards) in print and broadcast media, and specialist publications.

### **3. HAP pond creation**

- Work with partners to agree training and pond creation work programmes (months 1-7).
- Develop training courses
- Run training courses for 200-400 people (in 10-20 sessions) with “maker and shaker” organisations (months 5-12)
- Provide web and e-mail based support for people making ponds (month 5 onwards)
- Provide on-the-ground support at larger pond creation sites (month 7 onwards)
- Year 1 target: create 100 ponds in England and Wales.

### **4. BAP species pond development**

- Finalise first list of BAP species sites with partner organisations (months 2-7)
- Work with ARGs to identify, create and manage ponds for herptiles (month 3 onwards).
- Liaise with sites owners and managers to arrange pond creation (month 5 onwards)
- Begin pond creation for other BAP species (month 12).

### **5. Monitoring, feedback, quality assurance**

- Collate pond creation data from pond makers (month 7 onwards)
- Visit sites to collect data on pond quality (month 7 onwards)
- Analyse and interpret monitoring data (month 7 onwards).

### **6. Fundraising and continuation planning**

- Submit detailed bid to Biffaward for pond digging fund (month 9)
- Undertake additional fundraising (e.g. SITA Trust and others) for pond digging fund once first BAP site list is completed (month 7 onwards).

### **7. Reporting**

- Produce end of first year report on progress to date and way forward (month 12).

## **Year 2 Activities and objectives**

### **1. Project management and development**

- Manage project and staff (ongoing)
- Steering group (meetings twice annually, months 15 and 21)
- Project staff meetings (monthly).

### **2. Communications**

- Update tool-kit (month 17)
- Develop publicity materials and articles (on-going). The target is to place 5-10 articles annually in newsletters and magazines of main partners and others, including one major publicity event during the year to 're-launch' the project.

### **3. HAP pond creation**

- Complete work with partner organisations to agree training and pond creation work programmes (months 13-24)
- Run training courses with "maker and shaker" organisations for 200-400 people (in 10 - 20 sessions) (months 13-24)
- Provide on-the-ground support at larger pond creation sites (months 13-24)
- Year 2 target: create 900 ponds of high ecological potential in England and Wales.

### **4. BAP species pond development**

- Liaise with sites owners and managers to arrange pond creation (ongoing)
- Administer grants to pond makers (ongoing)
- Work on-the-ground to ensure BAP species ponds are created (ongoing)
- Work with ARGs to manage ponds for herptiles
- Prepare list of sites for BAP pond creation suitable for funding by land-fill tax (months 13-24)
- Year 2 target: create 145 ponds in England and Wales for BAP species.

### **5. Monitoring, feedback, quality assurance**

- Collate pond creation data from pond makers (ongoing)
- Visit sites to collect data on pond quality (ongoing)
- Data analysis (ongoing).

### **6. Fundraising and continuation planning**

- Undertake fundraising for creation of BAP species ponds (ongoing).

### **7. Reporting**

- Produce end of second year report on progress to date and way forward (month 24).

### **Year 3**

In year three, the focus will again be on delivering large numbers of ponds on-the-ground.

With wider countryside ponds, emphasis is likely to shift from training to providing on-the-ground support for larger schemes. However training courses will continue at a lower level for new staff in maker and shaker organisations. More specialist training courses or workshops may be developed if required.

Both the coordinator and regional officers will work to identify key players in maker organisations, who will continue to promote high quality pond creation internally after the project ends.

Our regional officers will work to get the second set of BAP species ponds dug. They will also work with landowners and managers to agree new sites for pond creation in the final year. ARGs will continue the creation and management of ponds for herptiles.

Our communications manager will keep the project profile high with case studies and success stories, in the press and partner newsletters and magazines.

The technical advisor and regional officers will undertake monitoring visits to selected sites and feed this information back to the project coordinator.

The project coordinator will analyse new pond data collated by staff. The third year report will include a full analysis of the project's success to date, and will also make recommendations for the most effective ways of continuing the project once The Tubney Charitable Trust funding ends in year 4.

### **Year 4**

As in year three, the focus of year four will be in delivering HAP and BAP species ponds.

Maker and shaker organisations will, by now, be experienced in high quality pond creation and will be able to create new high quality ponds with little assistance. The Regional project officer's time will, therefore, shift to ensuring the more time-consuming BAP species ponds are delivered.

To help ensure the project's continuation in later years, both the coordinator and regional officers will work with major maker organisations to ensure (i) pond creation is built into their plans at national and regional level (ii) key staff are identified within maker and shaker organisations who will be responsible for continuing to promote high quality pond creation internally after the project ends.

From the beginning of the year, the fundraiser will seek funding for: (i) continuation of core elements of the project in England and Wales after the main project ends (as identified in the third year report), (ii) development of the project in Scotland and Northern Ireland. In the last 6 months of the project, this work will intensify through the major involvement of the national coordinator.

At the end of the project a final report will be produced, and an update of advice materials will be undertaken.

## ***Year 3 Activities and objectives***

### **1. Project management and development**

- Manage project and staff (ongoing)
- Steering group (meetings twice annually, months 27 and 33)
- Project staff meetings (monthly).

### **2. Communications**

- Develop publicity materials and articles. The target is to place 5-10 articles annually in newsletters and magazines of main partners and others, including one major publicity event during the year to 're-launch' the project (probably tied to pond makers conference)
- Mid-project pond makers conference (or regional workshops), reviewing progress and creating platform for post-project continuation (provisionally month 29).

### **3. HAP pond creation**

- Run training courses with maker and shaker organisations but at lower intensity than years 1 and 2. The target is to run courses for 100-200 people in 5 to 10 sessions (months 25-36)
- Provide on-the-ground support at larger pond sites (months 25-36)
- Identify key players in maker organisations to continue new pond creation (month 25 onwards)
- Year 3 target: create 1600 ponds of high ecological potential in England and Wales.

### **4. BAP species pond development**

- Liaise with sites owners and managers to arrange pond creation (ongoing)
- Administer grants to pond makers (ongoing)
- Work on-the-ground to ensure BAP species ponds are created (ongoing)
- Work with ARGs to manage ponds for herptiles.
- Prepare lists of sites for BAP species pond creation suitable for land-fill tax funding (ongoing)
- Year 3 target: create 450 ponds in England and Wales for BAP species.

### **5. Monitoring, feedback, quality assurance**

- Collate pond creation data from pond makers
- Visit sites to collect data on pond quality
- Data analysis.

### **6. Fundraising and continuation planning**

- Undertake fundraising for creation of BAP species ponds (ongoing)
- Initial continuation planning will be started (month 32).

### **7. Reporting**

- Produce end of third year report on progress to date and way forward.

## **Year 4 Activities and objectives**

### **1. Project management and development**

- Manage project and staff (ongoing)
- Steering group (meetings twice annually, months 29 and 43)
- Project staff meetings (monthly).

### **2. Communications**

- Develop publicity materials and articles. The target is to place 5-10 articles annually in newsletters and magazines of main partners and others, including one major publicity event during the year, probably celebrating the successful completion of the project).

### **3. HAP pond creation**

- Work with maker and shaker organisations to ensure pond creation remains embedded in their policies and that key staff are identified to take project forward internally (months 37-41)
- A minimum level of training will be undertaken with up to 4 courses to ensure that new entrants into environmental management can be trained in pond creation (ongoing)
- Provide on-the-ground support at larger pond sites (ongoing)
- Year 4 target: create 1400 ponds of high ecological potential in England and Wales.

### **4. BAP species pond development**

- Liaise with sites owners and managers to arrange pond creation (ongoing)
- Administer grants to pond makers (ongoing)
- Work on-the-ground to ensure BAP species ponds are created (ongoing)
- Work with ARGs to manage ponds for herptiles.
- Year 4 target: create 380 ponds in England and Wales for BAP species.

### **5. Monitoring, feedback, quality assurance**

- Collate pond creation data from pond makers (ongoing)
- Visit sites to collect data on pond quality (ongoing)
- Data analysis (ongoing).

### **6. Fundraising and continuation planning**

- Carry out continuation planning (months 37-48)
- Undertake fundraising for project continuation in England and Wales, and for new project in Scotland and Northern Ireland (months 38-48).

### **7. Reporting**

Produce final project report (month 46-48).

***Appendix 1. List of partners and other organisations that the project will work with***

**Main partners**

1. Environment Agency
2. Countryside Council for Wales
3. Natural England
4. Defence Estates
5. RSPB
6. National Trust
7. Ministry of Justice
8. Forestry Commission
9. Herpetological Conservation Trust
10. Amphibian & Reptile Groups of the UK
11. Buglife
12. Aquatic Coleoptera Conservation Trust

**Other organisations the project expects to work with:**

**M = mainly ‘Makers’**

**S = mainly ‘Shakers’**

*Organisations with which we have discussed the project are highlighted.*

- 1. Regional Biodiversity Forums (S)**
- 2. The Woodland Trust (M)**
- 3. The Wildlife Trusts (M & S)**
- 4. Plantlife**
- 5. Thames Water**
- 6. Anglian Water**
- 7. Quarry Products Association**
- 8. Bat Conservation Trust (S)**
- 9. Freshwater Biological Association**
10. Campaign to Protect Rural England (S)
- 11. Farming & Wildlife Advisory Group (S)**
- 12. Game & Wildlife Conservation Trust (S)**
13. The Grassland Trust (M)
14. Mammal Society (S)
- 15. Wildfowl & Wetlands Trust (M)**
16. WWF (S)
17. British Dragonfly Society (S)
- 18. Local wildlife groups and environmental organisations (M)**

- 19. Wetland Vision for England (S) (a partnership of Natural England, Environment Agency, RSPB, The Wildlife Trusts).**
- 20. Local Biodiversity Action Plan steering committees (S)**
- 21. BTCV (M)**
- 22. Areas of Outstanding Natural Beauty in England and Wales (M & S)**
- 23. Local Authorities (including planners, ecologists, staff on-the-ground) (S)**
24. The Crown Estate (M)
25. National Parks (M & S)
26. The National Forest
- 27. The Royal Parks (M)**
28. The Duchy of Cornwall (M)
29. Internal Drainage Boards (M & S)
30. Anglers’ Conservation Association (S)
- 31. British Association for Shooting and Conservation (inc. Green Shoots) (S)**
- 32. British Waterways (M & S)**
- 33. Defra (S)**
34. Water companies (other than Thames Water and Anglian Water) (M)
35. Country Land & Business Association (S)
- 36. Institute of Ecology and Environmental Management (S)**
- 37. Association of Rivers Trusts and individual rivers trusts (M & S)**
- 38. Environmental consultants and landscape architects (M & S)**
39. Rural land management businesses (M)
40. Large private estates (e.g. Grosvenor Estates) (M)
41. Aggregate owners/lease-holders (M)
42. Farming companies (e.g. Velcourt) (M)
43. The River Restoration Centre (S)
44. Salmon & Trout Association (S)
45. Agrochemical manufacturers (e.g. Syngenta) (S)

**Appendix 2. List of Biodiversity Action Plan species for which ponds will be created showing (i) Biodiversity Action Reporting System (BARS) target or Biodiversity Reporting and Information Group species priority action addressed, (ii) expected partners (iii) species habitat (iv) examples of sites where work will be undertaken for these species and (v) additional species of conservation concern benefiting**

Species	Partner(s)	Habitat of the species	BARS target or BRIG action addressed by pond creation	Examples of location(s) where work is planned	Additional biodiversity benefits: BAP, RDB and Nationally Scarce species also benefiting
1. Bearded Stonewort ( <i>Chara canescens</i> )	<ul style="list-style-type: none"> <li>• Froglife</li> <li>• Nick Stewart</li> </ul>	Occurs in ponds at Orton brick pits (now known as Hampton Reserve) and in ponds in surrounding area. In this area it needs a succession of new ponds (N. Stewart, pers.comm.).	<p>New species so not listed on BARS yet.</p> <p>Contributes to species priority action S1: Maintain open conditions of existing water bodies and create new bodies for colonisation (Peterborough brick pits)</p>	<p>1. Hampton Reserve.</p> <p>2. Peterborough area around the Hampton Reserve.</p>	<p>Ponds supporting Bearded Stonewort on the Hampton Reserve also support:</p> <ul style="list-style-type: none"> <li>• Great Crested Newt (BAP species)</li> <li>• Fen Pondweed (Nationally Scarce)</li> <li>• Water beetles (2 RDB, 10+ Nationally Scarce species) <ul style="list-style-type: none"> <li>- <i>Dryops similis</i> (RDB)</li> <li>- <i>Hydrochus elongatus</i> (RDB)</li> </ul> </li> </ul> <p>Sources for benefiting species data: Pond Conservation surveys of Hampton Reserve</p>
2. Baltic Stonewort ( <i>Chara baltica</i> )	<ul style="list-style-type: none"> <li>• CCW</li> <li>• Defence Estates</li> <li>• Forestry Commission</li> <li>• Nick Stewart</li> </ul>	A perennial of mildly brackish ditches, dune slack pools and lakes/ broads on sandy substrates close to the sea.	Contributes to species priority action S3: Actively create suitable habitat for colonisation (e.g. through peat cutting, dune pool creation)	<p>1. Newborough Warren (Anglesey)</p> <p>2. Area around Braunton Burrows (Devon)</p>	
3. Convergent Stonewort ( <i>Chara connivens</i> )	<ul style="list-style-type: none"> <li>• RSPB</li> <li>• Nick Stewart</li> </ul>	Occurs mainly in larger coastal freshwater sites. Also present in smaller pools	Contributes to BARS Target 2: Establish viable populations at 4 extant sites by 2010.	Potential locations for this species are: 1. RSPB Hodbarrow (Cumbria).	

		at RSPB Hodbarrow (Cumbria)			
4. Dwarf Stonewort ( <i>Nitella tenuissima</i> )	<ul style="list-style-type: none"> <li>• CCW</li> <li>• Defence Estates</li> <li>• Nick Stewart</li> </ul>	Found in calcareous fenland, where it occurs in shallow peaty pools and ditches in depths of up to 1 m (original BAP). Recently, the main management for this species has been scraping shallow pools in peat.	Contributes to BARS Targets 1 and 3: T1. Establish viable populations at 4 extant sites by 2010. T2. Re-establish at three historic sites through habitat restoration by 2010.	1. Anglesey Fens 2. Breckland	<p>Ponds supporting Dwarf Stonewort in the Anglesey Fens also support:</p> <ul style="list-style-type: none"> <li>• Nationally Scarce Stoneworts: <ul style="list-style-type: none"> <li>- Hedgehog Stonewort (<i>Chara aculeolata</i>)</li> <li>- Clustered Stonewort (<i>Tolypella glomerata</i>).</li> </ul> </li> <li>• Great Crested Newt (BAP species)</li> <li>• Medicinal Leech (RDB Vulnerable)</li> <li>• Lesser Water-plantain (RDB, Near Threatened)</li> <li>• Fen Pondweed (Nationally Scarce)</li> </ul> <p>Ponds rich in Stoneworts will be Habitats Directive Annex 1 Habitats 'Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> species'.</p> <p>Source for benefiting species data: Nicolet P, Weatherby A, Biggs J, Williams P and Hatton-Ellis T (2007). <i>A preliminary assessment of Important Areas for Ponds (IAPs) in Wales</i>. Oxford: Pond Conservation.</p>
5. Tassel Stonewort ( <i>Tolypella intricata</i> )	<ul style="list-style-type: none"> <li>• RSPB</li> <li>• Defence Estates</li> <li>• Nick Stewart</li> </ul>	Tassel Stonewort is a species of alkaline water in pools, canals, ditches, poached edges of ponds and	Contributes to BARS Target 1: Maintain two extant metapopulations of this species.  Contributes to species priority action S3: Pond	1. Otmoor area (Oxon/Bucks): site of one extant metapopulation. 2. Inglestone Common (Glos.), (second major metapopulation)	<p>Ponds supporting Tassel Stonewort on Otmoor also support:</p> <ul style="list-style-type: none"> <li>• Tubular water-dropwort (BAP species)</li> <li>• Lesser Water-plantain (RDB, Near Threatened)</li> <li>• Northern Lapwing (BAP species)</li> <li>• Water beetles (1 RDB, 4 Nationally Scarce): <ul style="list-style-type: none"> <li>- <i>Enochrus nigritus</i> (RDB, Rare)</li> </ul> </li> </ul>

		wheel-ruts that are dry during the summer months (original BAP). Now mainly found in temporary or fluctuating ponds.	creation to ensure suitable habitat available for colonisation.		<ul style="list-style-type: none"> <li>- <i>Peltodytes caesus</i> (NS)</li> <li>- <i>Agabus melanarius</i> (NS)</li> <li>- <i>Laccobius sinuatus</i> (NS)</li> <li>- <i>Hydroglyphus geminus</i> (NS)</li> </ul> <p>Source for benefiting species data: Pond Conservation surveys of Otmoor.</p>
6. Great Tassel Stonewort ( <i>Tolypella prolifera</i> )	<ul style="list-style-type: none"> <li>• RSPB</li> <li>• Nick Stewart and Tim Pankhurst</li> </ul>	Slow-moving alkaline water in ditches, rivers and canals. Discussion with Nick Stewart indicates that a ditch-shaped pond at the Mepal site would be suitable for this species.	Contributes to BARS Target 1: Maintain viable populations of this species at 4 extant sites.	1. Ouse Washes (Cambridgeshire).  There are currently no other suitable locations identified.	
7. Foxtail Stonewort ( <i>Lamprothamnium papulosum</i> )	<ul style="list-style-type: none"> <li>• Defence Estates</li> <li>• Nick Stewart</li> </ul>	Grows on sandy or silty substrates in depths of up to 2 m in coastal lagoons or lagoon-like habitats on the south coast and Outer Hebrides.	Not listed on BARS. Contributes to species priority action S2: Ensure appropriate nutrient levels in water bodies near to extant populations (aim: stabilise macrophyte vegetation) - Dorset, Hampshire, West	Potential locations for this species are: 1. Waterbodies in the vicinity of: (i) 8 acre pond, Lymington; (ii) Fort Gillkicker Moat (iii) Little Deep (Chichester) (iv) The Fleet (Dorset). 2. Royal Naval Armaments Depot, Gosport (c5 km from	Creating saline ponds for Foxtail Stonewort could benefit two other lagoon BAP species: the nationally scarce lagoon shrimp <i>Gammarus insensibilis</i> the nationally rare <i>Nematostella vectensis</i>

			Sussex, Uist	Fort Gillkicker)	
8. Ribbon-leaved Water-plantain ( <i>Alisma lanceolatum</i> )	<ul style="list-style-type: none"> <li>• National Trust</li> <li>• Natural England</li> <li>• Tim Pankhurst</li> </ul>	Occurs in lakes, ponds and ditches, particularly where bare sediments are periodically available.	<p>Contributes to BARS target: T2. Establish and maintain a further five viable populations by 2015.</p> <p>Contributes to species priority actions: S2: Research measures to re-establish natural, ecological processes which would enable this species to disperse across the landscape and form self-sustaining populations.</p>	<p>Potential locations include:</p> <p>1. Great Fen Project</p> <p>In the longer term the Wicken Fen area, where proposals for wetland restoration are being developed, may also be suitable.</p> <p>Sites and approaches to the species are under discussion with the lead partners (Plantlife and Environment Agency).</p>	
9. True Fox-sedge ( <i>Carex vulpina</i> )	<ul style="list-style-type: none"> <li>• Natural England</li> <li>• RSPB</li> <li>• Defence Estates</li> <li>• Rare Plants Group of the Ashmolean Natural History Society of Oxfordshire</li> </ul>	Occurs by ditches and rivers, in meadows and in a Quercus-Crataegus thicket. It sometime grows in standing waters (Flora).	<p>Contributes to BARS Targets: T1. Maintain the current range of true fox-sedge. T2. Increase populations at 2 sites by 2015.</p>	<p>Potential locations include:</p> <p>1. Otmoor and Upper Ray area</p> <p>2. Kent: in the vicinity of the R. Brede.</p>	Ponds supporting True Fox-sedge are typically species poor.

<p>10. Brown Galingale (<i>Cyperus fuscus</i>)</p>	<p>Likely partner:</p> <ul style="list-style-type: none"> <li>• Plantlife</li> </ul>	<p>An annual of moist, open disturbed ground around the margins of ponds and by ditches, often on ground subject to winter-flooding.</p>	<p>(New BAP species). There are no BARS targets for this species. Contributes to species priority actions: S3: At all sites, with appropriate management in place, consider measures to expand area of suitable habitat through creation of networks of linked ponds and ditches.</p>	<p>Potential locations for pond creation include:</p> <ol style="list-style-type: none"> <li>1. In the lower Avon valley (around Kingston Common, near Ringwood)</li> <li>2. Near Shortwood Common (Surrey).</li> </ol>	<p>Species of conservation concern which occur in the same sites as <i>Cyperus fuscus</i> include:</p> <ul style="list-style-type: none"> <li>• Tubular water-dropwort (BAP species)</li> </ul> <p>Source for benefiting species data: Pond Action (now Pond Conservation) (2000). Survey of the wetland plants and aquatic macroinvertebrates of Shortwood Common Pond. Oxford: Pond Action.</p> <p>Surveys undertaken as part of the National Pond Survey at Haskell's Pond, Kingston Common near Ringwood (NPS name: Blashford Hand Pond BLHP).</p>
<p>11. Starfruit (<i>Damasonium alisma</i>)</p>	<ul style="list-style-type: none"> <li>• Royal Botanic Gardens</li> <li>• Buckinghamshire County Council</li> <li>• National Trust</li> <li>• West Berkshire Council.</li> </ul> <p>It is also expected that work would be done in association with Plantlife.</p>	<p>This annual grows on acid mud by small ponds where the habitat is kept open by fluctuating water levels and disturbance by grazing animals (Flora).</p>	<p>Contributes to BARS targets: T1. Maintain viable populations at nine extant native and introduced sites. T2. Establish and maintain viable populations at 2 historic sites by 2010, bringing the total number of sites to eleven.</p>	<p>Potential locations for pond creation include:</p> <ol style="list-style-type: none"> <li>1. Greenham Common</li> <li>2. Commons in Buckinghamshire near to current sites</li> </ol>	<p>Creating ponds for Starfruit could benefit the following species:</p> <ul style="list-style-type: none"> <li>• Tubular Water-dropwort (BAP species)</li> <li>• National scarce water beetles including: <ul style="list-style-type: none"> <li>- <i>Cercyon convexiusculus</i></li> <li>- <i>Cercyon sternalis</i></li> <li>- <i>Helochares punctatus</i></li> <li>- <i>Hydaticus seminiger</i></li> <li>- <i>Hydrochus angustatus</i></li> <li>- <i>Hygrotus decoratus</i></li> <li>- <i>Limnoxenus niger</i></li> </ul> </li> </ul> <p>Source for benefiting species data: Pond Action (now Pond Conservation) (2000). <i>Survey of the wetland plants and aquatic macroinvertebrates in five starfruit ponds with notes on their management.</i> Oxford: Pond Action.</p>

<p>12. Pygmy rush (<i>Juncus pygmaeus</i>)</p>	<ul style="list-style-type: none"> <li>• Natural England</li> <li>• National Trust</li> </ul>	<p>Occurs in seasonally wet, compacted open ground such as in gateways and on wheel tracks, less often in natural areas of erosion and in quarries, on serpentine heathland. Occurs in Mediterranean temporary ponds on The Lizard (Cornwall).</p>	<p>Contributes to species priority action S3: Restore ephemeral pools and 'ruts' within heathland areas where the species has been recorded.</p>	<p>Potential locations for pond creation include: 1. The Lizard.</p> <p>This is the only UK location for this species.</p>	<p>Creating ponds for Pygmy Rush on The Lizard is likely to benefit:</p> <ul style="list-style-type: none"> <li>• Three-lobed Water-crowfoot (BAP species)</li> <li>• Yellow Centaury (BAP species)</li> <li>• Nationally Scarce water beetles including: <ul style="list-style-type: none"> <li>- <i>Graptodytes flavipes</i></li> <li>- <i>Driops striatellus</i></li> </ul> </li> </ul> <p>Source for data on benefiting water beetle species data: SAC designation.</p>
<p>13. Cut-grass (<i>Leersia oryzoides</i>)</p>	<ul style="list-style-type: none"> <li>• RSPB</li> </ul>	<p>A rhizomatous perennial of nutrient-rich mud around the cattle trampled margins of lakes and ponds, in ditches, on canal banks and riversides; formerly in wet meadows (Atlas)</p>	<p>Contributes to BARS target: T1: Maintain the geographical range of cut-grass in Britain.</p>	<p>Potential locations for pond creation include: 1. Amberley Wild Brooks</p>	<p>Creating ponds for Cut-grass at Amberley is likely to benefit:</p> <ul style="list-style-type: none"> <li>• Great Tassel Stonewort (BAP species)</li> <li>• True Fox-sedge (BAP species)</li> <li>• Compressed Pondweed (BAP species)</li> <li>• Great Water Parsnip (BAP species)</li> <li>• Sharp-leaved Pondweed (RDB Vulnerable)</li> <li>• Slender-leaved Pondweed (Nationally Scarce)</li> <li>• Least Duckweed (Nationally Scarce)</li> </ul> <p>Source for benefiting species data: Ponds Conservation Trust (now Pond Conservation). 2004.</p>

					<i>Appraisal of Amberley Wild Brooks aquatic invertebrate, wetland plant and water chemistry monitoring data.</i> Pond Conservation, Oxford.
14. Fen Orchid ( <i>Liparis loeselii</i> )	<ul style="list-style-type: none"> <li>Natural England</li> </ul>	In East Anglia, species-rich fens on infertile soils, and to old peat cuttings. Elsewhere, young dune-slacks	Contributes to species priority action S3: Establish suitable management at all known sites - creation of successional habitat through small scale disturbance (turf pond cutting, scrub clearance, etc.) and maintenance of appropriate hydrology and water quality.	Potential locations for pond creation include: <ol style="list-style-type: none"> <li>At 3 sites in Norfolk Broads</li> <li>In South Wales Dune Slacks Important Area for Ponds.</li> </ol>	Pond creation for Fen Orchid could also benefit uncommon stoneworts e.g. Clustered Stonewort (Nationally Scarce) in south Wales.
15. Floating Water-plantain ( <i>Luronium natans</i> )	<ul style="list-style-type: none"> <li>British Waterways</li> <li>CCW</li> </ul>	Mesotrophic or oligotrophic lakes, pools and slow-flowing rivers, and abandoned or little-used canals.	Contributes to BARS target: T2: By 2010 increase connectivity of sites within two vulnerable lowland populations (Pembrokeshire and Severn Valley) through landscape scale enhancements and local improvements to habitat.	Potential locations for pond creation include: <ol style="list-style-type: none"> <li>St David's Peninsula heaths (Pembrokeshire)</li> <li>Severn Valley</li> </ol>	<p>Creating ponds for Floating water-plantain in Wales is likely to benefit:</p> <ul style="list-style-type: none"> <li>Pillwort (BAP species)</li> <li>Three-lobed Water-crowfoot (BAP species)</li> <li>Lesser Water-plantain (RDB, Near Threatened)</li> <li>Scarce Blue-tailed Damselfly (Nationally Scarce)</li> <li>Small Red Damselfly (Nationally Scarce).</li> </ul> <p>Source for benefiting species data: Nicolet P, Weatherby A, Biggs J, Williams P and Hatton-Ellis T (2007). A preliminary assessment of Important Areas for Ponds (IAPs) in</p>

					Wales. Oxford: Pond Conservation.
16. Grass-poly ( <i>Lythrum hyssopifolia</i> )	<ul style="list-style-type: none"> <li>Rare Plants Group of the Ashmolean Natural History Society of Oxfordshire</li> </ul>	An annual of disturbed ground which is flooded in winter, including hollows and ruts in arable fields, and damp pastures disturbed in winter by numerous waterfowl (Flora). A temporary pond specialist.	(New BAP species). No BARS targets. Contributes to species priority action S3: Consider measures to expand populations from centre of range and connect isolated sites on a landscape scale, restoring suitable habitat where necessary.	Potential locations for pond creation include: <ol style="list-style-type: none"> <li>Little Wittenham Nature Reserve (Oxon).</li> <li>Cholsey Meadow (Oxon).</li> </ol>	
17. Tubular Water-dropwort ( <i>Oenanthe fistulosa</i> )	<ul style="list-style-type: none"> <li>Defence Estates</li> <li>RSPB</li> <li>Blackpool Council</li> </ul>	A perennial herb of damp or wet habitats, usually in areas of winter flooding. It occurs in meadows and pastures in the flood plains of rivers, in marshes and fens, and in emergent and fringing vegetation by rivers, streams, canals, ditches, lakes	(New BAP species). No BARS targets. Contributes to species priority action S4: Research measures to re-establish natural, ecological processes which would enable this species to disperse across the landscape and form self-sustaining populations.	Potential locations for pond creation include: <ol style="list-style-type: none"> <li>Lewes Brooks (W. Sussex)</li> <li>North Blackpool Pond Trail</li> </ol>	<p>Creating ponds for Tubular Water-dropwort has the potential to benefit:</p> <ul style="list-style-type: none"> <li>Lesser Water-Plantain (RDB, Near Threatened)</li> <li>Pillwort (BAP species)</li> <li>Tassel Stonewort (BAP species)</li> <li>Nationally Scarce water beetles such as: <ul style="list-style-type: none"> <li><i>Enochrus nigrita</i></li> <li><i>Helochares punctatus</i></li> </ul> </li> </ul> <p>Source for benefiting species data: Pond Conservation National Pond Survey database and National Pond Monitoring Network database.</p>

<p>18. Pillwort (<i>Pilularia globulifera</i>)</p>	<ul style="list-style-type: none"> <li>• Cumbria Wildlife Trust</li> <li>• Defence Estates</li> </ul> <p>Plantlife is also a potential partner for this species.</p>	<p>and ponds.</p> <p>Edges of non-calcareous lakes, reservoirs, ponds or slow-flowing rivers, and sometimes on damp mine workings or as a submerged aquatic (Flora).</p>	<p>Contributes to BARS targets:</p> <p>T1. Maintain current range of the species in the UK in 91 10-km squares.</p> <p>T2. Maintain extant viable populations in the 7 vulnerable areas.</p> <p>T3. Establish two new metapopulation within the species' historic range (excluding the New Forest) by 2010.</p> <p>Contributes to species priority action S3: Restore grazing to heathland complexes and ensure creation of water bodies within core areas to re-establish connectivity between individual sites to allow dispersal of species</p>	<p>Potential locations for pond creation include:</p> <ol style="list-style-type: none"> <li>1. Hampshire grazing unit (Defence Estates)</li> <li>2. The Lizard</li> <li>3. Lake District.</li> </ol>	<p>Pillwort ponds are typically likely to be Annex I habitat 3130 'Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i>', a Habitats Directive priority.</p> <p>Creation of ponds for Pillwort is also likely to benefit:</p> <ul style="list-style-type: none"> <li>• Three-lobed Water-crowfoot (BAP species)</li> <li>• Tubular Water Dropwort (BAP species)</li> <li>• Fairy Shrimp (RDB, Vulnerable)</li> <li>• Nationally Scare water beetles such as: <ul style="list-style-type: none"> <li>- <i>Enochrus ochropterus</i></li> <li>- <i>Berosus signaticollis</i></li> </ul> </li> </ul> <p>Source for benefiting species data: Nicolet P, Weatherby A, Biggs J, Williams P and Hatton-Ellis T (2007). A preliminary assessment of Important Areas for Ponds (IAPs) in Wales. Oxford: Pond Conservation</p> <p>Surveys undertaken as part of the National Pond Survey.</p>
<p>19. Greater Water Parsnip (<i>Sium latifolium</i>)</p>	<ul style="list-style-type: none"> <li>• Rare Plants Group of the Ashmolean Natural History</li> </ul>	<p>This perennial herb was once typical of very wet, species-</p>	<p>Contributes to BARS targets:</p> <p>T1. Maintain the current range of</p>	<p>Potential locations for pond creation include:</p>	

	Society of Oxfordshire	rich, tall-herb fen, which often developed as floating mats at the margins of lakes and large rivers; now it is generally found in ditches, growing amongst other emergent species or in reedswamp.	greater water-parsnip in the UK. T2. Increase the range from baseline by return of species at five historic sites by 2010.	1. Wytham, Oxford. This site is chosen for experimental pond creation for this species.	
20. Fen Violet ( <i>Viola palustris</i> )	<ul style="list-style-type: none"> <li>• Rare Plants Group of the Ashmolean Natural History Society of Oxfordshire</li> <li>• Defence Estates</li> <li>• National Trust</li> <li>• Natural England</li> </ul>	Grows in relatively open vegetation, often with patches of bare soil; favours areas that are seasonally wet; in Ireland grows on margins of seasonally fluctuating lakes	Contributes to species priority action. S3: Encourage appropriate experimental management through stocking levels, turf cutting, etc. to attempt recovery of the species	<p>The main potential locations for pond creation is on:</p> <p>Otmoor RSPB reserve or adjacent areas.</p> <p>Creation of new pond habitat seems less likely to be viable in the short-term at Wicken or Woodwalton fens.</p>	<p>Creation of ponds for Fen Violet on Otmoor could also benefit:</p> <ul style="list-style-type: none"> <li>• Tassel Stonewort (BAP species).</li> </ul>
21. Little Whirlpool Ramshorn Snail ( <i>Anisus vorticulus</i> )	<ul style="list-style-type: none"> <li>• RSPB</li> <li>• Conchological Society</li> <li>• Environment Agency</li> </ul>	Now restricted to ditches in southern coastal grazing marshes; until the mid-1980s known from	Contributes to BARS Target 1 (the only target). Maintain the 7 distinct populations of little ramshorn whirlpool snail	<p>Potential locations for pond creation are:</p> <ol style="list-style-type: none"> <li>1. Pulborough Brooks (RSPB)</li> <li>2. Amberley Wild Brooks (RSPB).</li> </ol>	<p>Creating ponds for Little Whirlpool Ram 's-horn Snail at Amberley is likely to benefit:</p> <ul style="list-style-type: none"> <li>• Cut-grass (BAP species)</li> <li>• Great Tassel Stonewort (BAP species)</li> <li>• True Fox-sedge (BAP species)</li> <li>• Compressed Pondweed (BAP</li> </ul>

		one species rich floodplain pond in Surrey.	currently recorded		<p>species)</p> <ul style="list-style-type: none"> <li>• Great Water Parsnip (BAP species)</li> <li>• Sharp-leaved Pondweed (RDB Vulnerable)</li> <li>• Slender-leaved Pondweed (Nationally Scarce)</li> <li>• Least Duckweed (Nationally Scarce).</li> </ul> <p>Source for benefiting species data: Ponds Conservation Trust (now Pond Conservation). 2004. Appraisal of Amberley Wild Brooks aquatic invertebrate, wetland plant and water chemistry monitoring data. Pond Conservation, Oxford.</p>
22. Shining Ram's-horn Snail ( <i>Segmentina nitida</i> )	<ul style="list-style-type: none"> <li>• Conchological Society</li> <li>• RSPB</li> <li>• Natural England</li> </ul>	Occurs today in drainage ditches in marsh levels, in clean hard water. Formerly it was also from lakes and ponds, often situated on former floodplains or in areas of reclaimed marshland.	Contributes to BARS targets: T1. Maintain the current range for this species of 27 distinct sites within 14 10km squares. T2. Increase the population size within the current known sites.	Potential locations for pond creation are: 1. RSPB Lewes Brooks 2. RSPB Pulborough Brooks.	Creating ponds for the Shining Ram's-horn snail is likely to benefit: <ul style="list-style-type: none"> <li>• Little Whirlpool Ram's-horn snail (BAP species)</li> <li>• Large-mouthed Valve Snail (RDB, Vulnerable).</li> <li>• <i>Pisidium pseudospaerium</i> (RDB, Rare).</li> </ul>
23. Glutinous Snail ( <i>Myxas glutinosa</i> )	<ul style="list-style-type: none"> <li>• Conchological Society</li> <li>• Environment Agency</li> </ul>	Only known current site: Llyn Tegid (Gwynedd); formerly occurred in	Contributes to BARS target: T1: Ensure the known remaining population and any new	Potential sites for pond creation are: 1. Oxford area 2. Llyn Tegid area	Creating ponds for the Glutinous snail is likely to provide species rich ponds habitats fulfilling Pond HAP diversity criteria.

		Kennington Pit, Oxford.	populations found are maintained.		
24. Mud Snail ( <i>Omphiscola glabra</i> )	<ul style="list-style-type: none"> <li>Buglife</li> </ul>	Lives in water low in nutrients in ponds and ditches or around seepages.	(New BAP species). There are no BARS targets for this species.	<p>Potential sites for pond creation are:</p> <ol style="list-style-type: none"> <li>In the vicinity of Kingcombe Meadows (Dorset);</li> <li>In the vicinity of Sound Common (Cheshire)</li> <li>Various locations in the south Lake District</li> </ol> <p>Many other locations also possible as this is still a relatively widespread species.</p>	<p>Creating ponds for the Mud snail is likely to benefit:</p> <ul style="list-style-type: none"> <li>Medicinal leech (RDB, Rare)</li> <li>Water beetles (Nationally Scarce) <ul style="list-style-type: none"> <li><i>Enochrus melanocephalus</i></li> <li><i>Helochares punctatus</i></li> <li><i>Hydraena testacea</i></li> </ul> </li> </ul>
25. Flowering-rush weevil ( <i>Bagous nodulosus</i> )	<ul style="list-style-type: none"> <li>Aquatic Coleoptera Conservation Trust</li> </ul>	On Flowering-rush; currently known only in the Somerset Levels	<p>(New BAP species). There are no BARS targets for this species.</p> <p>Contributes to species priority action S1: Manage the last known area to hold this species. Threats include: drainage, pollution and insensitive land management. Grazing must be managed to ensure survive of the host plant, <i>Butomus umbellatus</i>.</p>	<p>Potential sites for pond creation are at the only known site on Westhay Moor (Somerset). Work could be undertaken elsewhere if further populations of the are species discovered</p>	<p>Creation of ponds for the flowering-rush weevil is likely to benefit populations of water quality sensitive plants occurring in the Westhay area such as:</p> <p>It could also benefit major fen invertebrate assemblages.</p>

<p>26. One-grooved Diving Beetle) (<i>Bidessus unistriatus</i>)</p>	<ul style="list-style-type: none"> <li>• Aquatic Coleoptera Conservation Trust</li> <li>• New Forest National Park</li> <li>• Forestry Commission</li> </ul>	<p>Confined to lowland, stagnant water bodies and slow drains.</p>	<p>Contributes to old BAP targets (not shown on BARS): OT1. Maintain populations at all known sites. OT2. Enhance populations at known sites by 2010. Contributes to species priority action S2: A recent survey of all New Forest marlpits indicates that this species is confined to one pool in a complex. Introduction to other pools in this complex is proposed, taking advantage of recent removal of tree cover. If this is successful it is proposed that <i>Bidessus unistriatus</i> will be moved to other New Forest sites.</p>	<p>1. New Forest:  (i) Sway Pits: work may be possible here, in addition to scrub clearance to make the current site (known “officially” as Marlpit Oak) more suitable.  (ii) Crockford Bridge (New Forest). Please note this site should remain confidential.  (iii) A third New Forest site has been proposed to the Forestry Commission recently.</p> <p>2. Norfolk Broads: near Catfield: ponds definitely needed here.</p>	<p>Creation of ponds for the One-grooved Diving Beetle should also benefit:</p> <ul style="list-style-type: none"> <li>• Mud snail (BAP species)</li> </ul>
<p>27. Zircon Reed Beetle (<i>Donacia aquatica</i>)</p>	<ul style="list-style-type: none"> <li>• Aquatic Coleoptera Conservation Trust</li> </ul>	<p>Amongst sedges on the edge of ponds, ditches, lakes and fens.</p>	<p>Contributes to species priority action S1: Wider countryside measures to conserve functional open water systems might benefit this</p>	<p>Potential sites for pond creation are:  1. In the vicinity of the Burton Mill Pond (Sussex) site (the only site in southern England).</p>	<p>Pond creation for this species at Burton Mill could also benefit:</p> <ul style="list-style-type: none"> <li>• Cowbane (Nationally Scarce, only Sussex population)</li> <li>• Mud Snail (BAP species)</li> </ul>

			species if focussed on protecting lake shores from encroachment by scrub through grazing management.		
28. Spangled Water Beetle ( <i>Graphoderus zonatus</i> )	<ul style="list-style-type: none"> <li>• Aquatic Coleoptera Conservation Trust</li> <li>• Defence Estates</li> </ul>	Occurs only in ponds in Woolmer Forest (Hampshire). These include a deep, permanently flooded pond, with its bottom covered by <i>Sphagnum</i> , created by peat cutting in 1895; pools resulting from military activities; and pools dug as breeding sites for Natterjack toads.	Old BAP targets: OT1: Ensure that at least four sub-populations are maintained within the Woolmer Forest area by 2010.	The only potential site for pond creation for this species is Woolmer Forest.	<p>Creating ponds for the Spangled Water Beetle at Woolmer is likely to benefit:</p> <ul style="list-style-type: none"> <li>• Natterjack Toad (BAP species)</li> <li>• Water beetle assemblage of wet heathland</li> </ul> <p>Creating waterbodies at Woolmer is also likely to add to the stock of Habitats Directive Natural dystrophic lakes and ponds.</p>
29. New Forest Mud Beetle ( <i>Helophorus laticollis</i> )	<ul style="list-style-type: none"> <li>• Aquatic Coleoptera Conservation Trust</li> </ul>	Found in shallow grassy pools on heathland	OT1. Maintain populations at all known sites. OT2. Ensure populations at known sites have long-term viability. OT3. Restore populations to two suitable sites	There are several potential sites in the New Forest.	<p>Creating ponds for the New Forest Mud Beetle is also likely to benefit:</p> <ul style="list-style-type: none"> <li>• Mud Snail (BAP species)</li> <li>• Pillwort (BAP species).</li> </ul>

			within the historic range by 2010.		
30. Ron's Diving Beetle ( <i>Hydroporus necopinatus</i> )	<ul style="list-style-type: none"> <li>Defence Estates</li> <li>Aquatic Coleoptera Conservation Trust</li> <li>National Trust</li> </ul>	Shallow pools on peat on exposed heathland in southern England. It is found in ruts created by vehicles and in small pools associated with artillery practice.	No BARS target at present.	Location where there is potential for pond creation: <ol style="list-style-type: none"> <li>Studland NNR (Dorset)</li> <li>Bovington Armour Centre (Dorset).</li> <li>Hartland Moor (Dorset).</li> </ol>	Ponds supporting Ron's Diving Beetle also support: <ul style="list-style-type: none"> <li>Small Red Damselfly (Nationally Scarce).</li> </ul>
31. Oxbow Diving Beetle ( <i>Hydroporus rufifrons</i> )	<ul style="list-style-type: none"> <li>Aquatic Coleoptera Conservation Trust</li> </ul>	Extremely shallow and temporary pools in unimproved pasture, often in old oxbow systems	Contributes to BARS target: T1: Ensure that viable populations are maintained within each of the areas currently occupied.	Sites where pond creation is planned: <ol style="list-style-type: none"> <li>South Lakeland</li> <li>Epworth (Lincolnshire)</li> <li>East Wretham (Norfolk)</li> </ol>	Ponds supporting Oxbow Diving Beetle also support: <ul style="list-style-type: none"> <li>Mud snail (BAP species)</li> <li>could support Fairy shrimp (RDB, Vulnerable)</li> </ul>
32. Puzzled Skipper ( <i>Laccophilus poecilus</i> )	<ul style="list-style-type: none"> <li>RSPB</li> <li>Aquatic Coleoptera Conservation Trust</li> </ul>	Occupies lowland rich fen, near the coast but not in brackish water.	There is no recent BARS target for this species. Recent work for this species includes pond creation at Lewes Brooks	Only recently found at Lewes Brooks.	Ponds supporting the Puzzled Skipper could also support species typical of grazing fens such as: <ul style="list-style-type: none"> <li>Shining Ram's-horn (BAP species)</li> <li>Tubular Water-dropwort (BAP species)</li> </ul>
33. Starlet Sea Anemone ( <i>Nematostella vectensis</i> )	<ul style="list-style-type: none"> <li>RSPB</li> <li>Defence Estates</li> <li>Buglife</li> <li>Environment Agency</li> </ul>	Saline coastal lagoons and ponds.	Contributes to species priority action: S2: Introduce / re-introduce where suitable habitats occur.	Potential areas for brackish pond creation include: <ol style="list-style-type: none"> <li>Bembridge area (Isle of Wight)</li> <li>Newtown Harbour (Isle of Wight)</li> </ol>	
34. Atlantic Stream	<ul style="list-style-type: none"> <li>Environment</li> </ul>	Found	Contributes to	Potential locations	

Crayfish ( <i>Austropotamobius pallipes</i> )	Agency	in a wide variety of environments, including canals, streams, rivers, lakes, ponds, reservoirs and water-filled quarries.	BARS target: T2 Achieve an increase in range of white-clawed crayfish in the UK by 59 10 km squares to 300 by 2030 (through creation of Ark Sites).	are distributed throughout England and Wales including: 1. Cannock Chase (Staffordshire) 2. Peak District Dales (Derbyshire and Staffordshire)	
35. Lagoon Sand Shrimp ( <i>Gammarus insensibilis</i> )	<ul style="list-style-type: none"> <li>Defence Estates</li> <li>Buglife</li> <li>National Trust</li> <li>Environment Agency</li> </ul>	Saline coastal lagoons and ponds.	Contributes to species priority action: S2: Appropriate management at three known sites to maintain and enhance populations. Restore, through relocation, populations to former sites. Threats include: Inappropriate management of saline lagoon habitat. Loss of habitat.	Potential areas for brackish pond creation include: 1. Bembridge area (Isle of Wight) 2. Newtown Harbour (Isle of Wight)	
36. Tadpole Shrimp ( <i>Triops cancriformis</i> )	<ul style="list-style-type: none"> <li>HCT</li> <li>New Forest National Park</li> </ul>	Temporary ponds.	Contributes to BARS target: T1: Maintain the New Forest population in a healthy, dynamic state.	Potential sites for pond creation are: 1. the New Forest. 2. The Solway (Caerlaverock, SW Scotland).	Pond creation for the Tadpole Shrimp could also benefit: Fairy Shrimp (RDB, Vulnerable).
37. Jennings' Ribbon Worm ( <i>Prostoma jenningsi</i> )	<ul style="list-style-type: none"> <li>Buglife</li> <li>Lancashire Wildlife Trust</li> </ul>	A pond in Croston, Lancashire,	Contributes to species priority action (only one	If the species is rediscovered there is potential to create	

		the only known site in the world.	action): S1: Survey the only known site to establish the status of this species. Manage the site to prevent loss of water quality i.e. prevent pollution of the pond.	additional habitat in the area.	
38. Pondweed Leafhopper ( <i>Macrosteles cyane</i> )	• Buglife	Known from three ponds in Surrey and Sussex.	Contributes to species priority action: S3: Appropriate site management required. Management advice based on ecological studies, but especially in relation to management of emergent vegetation (particularly invasive species) and water quality in small ponds. This species is extraordinarily vulnerable: it occurs in small populations, usually in small ponds, often outside sites managed for conservation, which are very	Pond creation would be beneficial in the vicinity of the three known sites for this species: 1. Newdigate Brickpits, Surrey 2. Dunstan's Farm, near Heathfield, Sussex 3. Jill's pond, near Lewes, Sussex.	

			vulnerable to neglect or inappropriate management and changes to water quality.		
39. Yellow Mayfly ( <i>Potamanthus luteus</i> )	<ul style="list-style-type: none"> <li>Environment Agency</li> </ul>	<p>This species is restricted to a single river system: the Welsh River Wye, whose population has suffered a catastrophic collapse in the last decade. Larvae are found in large rivers in both riffle sites and small pools almost cut off from the main river.</p>	<p>Contributes to species priority action: S1: Threats include: Poor water quality - both persistent and catastrophic pollution events Changes to the structure and management of marginal and riparian vegetation Low flows caused by abstraction High levels of suspended silt Unsympathetic dredging. Neglect of river channels, leading to choking with vegetation. As adults are attracted to light, the positioning of bankside lights, such as road lights, may have a deleterious effect on breeding populations. River engineering work could eliminate</p>	<p>Recorded in the National Pond Survey in a floodplain pond at Ffordd Fwar (near Hay on Wye). Pond creation in this area may benefit the populations of the species.</p>	<p>Creation of ponds for Yellow Mayfly could also benefit: <i>Sialis nigripes</i> (Nationally Scarce, an alderfly)</p>

			side channels, and this could threaten populations of <i>P. luteus</i>		
40. Norfolk Hawker ( <i>Aeshna isosceles</i> )	<ul style="list-style-type: none"> <li>• Environment Agency</li> <li>• The Broads Authority</li> </ul>	Fen and grazing marsh dyke systems in Broadlands where it exploits unpolluted ditches and dykes, and occasionally small turf ponds.	Contributes to species priority actions: S3: Expand the (2006) English range by encouraging species re-establishment at up to three former sites in East Anglia by 2015. These sites should not be under current threat from sea-level rise. S4: If appropriate, increase the (2006) English range by conducting 'Conservation Introductions' (See BDS Guidelines for Re-introductions, 2006).	There are a number of areas in Broadland where shallow turf pond creation is planned.	Creation of ponds for Norfolk Hawker could also benefit: <ul style="list-style-type: none"> <li>• Dwarf Stonewort (BAP species)</li> </ul>
41. Sackformed moss animal ( <i>Lophopus crystallinus</i> )	<ul style="list-style-type: none"> <li>• Buglife</li> </ul>	Lakes, ponds, ditches and slow rivers. Currently known from 3 sites (artesian spring fed	Contributes to BARS target: T2: Ensure adult colonies are present at 6 sites by 2010.	Creating suitable groundwater-fed ponds in the area of current known populations may benefit this species.	

		pools, a lake and a river), though may be considerably more widespread.			
42. Window Winged Sedge ( <i>Hagenella clathrate</i> )	<ul style="list-style-type: none"> <li>• Buglife</li> <li>• Natural England</li> </ul>	The principal larval habitat of this species is in very small pools shaded by tussocks (primarily of <i>Molinia</i> ). It needs to be not too wet and not to dry i.e. it is associated with the margins of mire systems. It is threatened by habitat loss due to site drying as trees invade.	Contributes to species action S3: Develop a way of increasing extent of small pool habitat at Chartley and Whixall to maintain and extend extent of a site that is utilised by this species.	The only known UK sites are Chartley and Whixall Mosses (Cheshire).	
43. Fen Raft Spider ( <i>Dolomedes plantarius</i> )	<ul style="list-style-type: none"> <li>• Natural England</li> </ul>	At the margin of peat pools on Redgrave and Lopham Fen, on grazing marsh ditches in the Pevensy Levels and on a disused canal in south Wales..	Potentially contributes to BARS targets: T1 Increase the overall range of the fen raft spider at Redgrave & Lopham Fen to 13 Ha of habitat occupied 3 years in 5 by 2010 and to 65 Ha by 2020. T2 There should	Pond creation could be undertaken in the vicinity of the three known sites.	

			<p>be no overall decrease in occupied range of fen raft spider at Pevensey Levels from that recorded in 1990 at any time.</p> <p>T3 The number of sites with sustainable populations of fen raft spider should be increased by six by 2010. By 2020 the total number of sites with sustainable populations should be increased to 12.</p>		
<p>44. Natterjack Toad (<i>Epidaleacalamita</i>)</p>	<ul style="list-style-type: none"> <li>• HCT</li> <li>• Defence Estates</li> <li>• RSPB</li> </ul>	<p>Found almost entirely on three habitat types: sand dunes, saltmarsh and lowland heath. The key habitat requirements are shallow (often ephemeral), warm ponds for breeding and open, sandy terrestrial habitats for</p>	<p>Contributes to priority species action to S2: SPECIES SPECIFIC ACTION: Increasing the species range (and numbers of populations, by translocation and habitat improvement) is necessary to restore it to its former range. This requires habitat extent to be increased with</p>	<p>Pond creation is planned in:</p> <ol style="list-style-type: none"> <li>1. North Cumbria (15 ponds)</li> <li>2. Suffolk Sandlings (15 ponds).</li> </ol>	

		foraging, dispersal and hibernation	better linkage between sub-populations. Could be included as part of heathland, saltmarsh or sand dune habitat plans, but only if species specific requirements are acknowledged and implemented.		
45. Common Toad ( <i>Bufo bufo</i> )	<ul style="list-style-type: none"> <li>• HCT</li> <li>• Amphibian &amp; Reptile Groups of the UK</li> <li>• Anglian Water</li> </ul>	Prefers larger water bodies in which to breed and, because toxins are also present in the skin of the tadpoles, able to breed in ponds and lakes containing fish which learn to avoid the distasteful tadpoles.	Contributes to priority species action to S3: WIDER ACTION-PLANNING: This amphibian would benefit from recognition of its habitat and management needs at the wider landscape scale-both aquatic and terrestrial. Taking account of/ or determining its presence during the early stages of local authority development plans, land allocation (particularly brownfield sites) and then development schemes. Habitat management	Example of a potential pond creation site: 1. Letton Lakes (Herefordshire). 2. Near Henley Rowing Museum (Oxon).	Pond creation at Letton Lakes would also benefit: <ul style="list-style-type: none"> <li>• Medicinal leech (RDB, Rare)</li> <li>• A variety of stoneworts, including BAP species</li> </ul>

			schemes such as agri/env, highways schemes, and land management by public bodies could significantly enhance its current conservation status. Satisfying the requirements of the Water Framework Directive would help with water quality and supply issues. Countering the effects of habitat fragmentation at the local scale is a very high priority.		
46. Pool Frog ( <i>Pelophylax lessonae</i> )	<ul style="list-style-type: none"> <li>• HCT</li> <li>• Natural England</li> </ul>	Present at a set of pingo ponds in Norfolk.	Contributes to priority species action to S1: SINGLE SPECIES ACTION: Continue releases from Swedish stock. Continue habitat management at release site, expanding pond numbers by tree clearance / thinning and managing the terrestrial habitat.	Further pond creation for Pool Frog is planned at one confidential site in Norfolk.	
47. Great Crested	<ul style="list-style-type: none"> <li>• HCT</li> </ul>	Breeding sites	Contributes to	Examples of	Ponds supporting Great Crested

<p>Newt (<i>Triturus cristatus</i>)</p>	<ul style="list-style-type: none"> <li>• North East Wales Wildlife</li> <li>• Amphibian &amp; Reptile Groups of the UK</li> </ul>	<p>are mainly medium-sized ponds, though ditches and other waterbody types may also be used less frequently. Ponds with ample aquatic vegetation (which is used for egg-laying) seem to be favoured. Great crested newts do not require very high water quality, but are normally found in ponds with a circum-neutral pH</p>	<p>BARS Target 1: Achieve an increase in the number of occupied ponds from 100,000 to 120,000 by 2010.</p> <p>HABITAT ACTION- EXTENT AND CONDITION: Loss and degradation of ponds (primarily as in 1, but also loss of post industrial pond sites) coupled with fish introduction/ invasive alien plant species have exacerbated habitat losses. Management to restore and create aquatic and terrestrial habitats to suitable conditions is required. A landscape approach needs to be taken so that the benefits of such schemes are maximised and the viability of the targeted populations are maintained.</p>	<p>potential pond creation schemes for Great Crested Newt:</p> <ol style="list-style-type: none"> <li>1. Letton Lakes (Herefordshire)</li> <li>2. North-east Wales Pondscares project</li> <li>3. <u>Cuerden Park (Lancs)</u></li> <li>4. <u>Marshwood Vales and Blackmoor Vale (W. Dorset)</u></li> </ol>	<p>Newts in Letton Lakes also support:</p> <ul style="list-style-type: none"> <li>• Medicinal leech (RDB, Rare).</li> </ul>
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<p>48. Grass Snake (<i>Natrix natrix</i>)</p>	<ul style="list-style-type: none"> <li>• HCT</li> <li>• Amphibian &amp; Reptile Groups of the UK</li> </ul>	<p>Grass snakes visit a wide range of pond types to feed on amphibians and fish.</p>	<p>Contributes to priority species action to S2: GROUPED SPECIES ACTION-GENERAL HABITAT MANAGEMENT: Habitat management that provides suitable basking, feeding, breeding and hibernation sites in a connected landscape for <i>N.natrix</i>, <i>Anguis fragilis</i> and <i>Zootoca vivipara</i> and should be incorporated into agri/env schemes, highways schemes, brownfield development plans and land management by public bodies. Such management would include (not exhaustive list), scrub management, not planting up areas with trees, grassland management to</p>	<p>Examples of pond creation sites for Grass Snake are: 1. Alton Water Reservoir (Suffolk)</p>	
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			suitable heights, provision of hibernacula, provision of egg-laying sites for <i>N.natrix</i> , pond and water management, providing habitat connectivity.		
49. Song Thrush ( <i>Turdus philomelos</i> )	<ul style="list-style-type: none"> <li>• RSPB</li> <li>• Game &amp; Wildlife Conservation Trust</li> </ul>	Breeding song thrushes require dense woody vegetation for nesting cover situated close to damp soils providing soil invertebrates.	Contributes to priority species action to S3: Carry out research on possible impacts of climate-change induced drying of the countryside, including the investigation of the role of bespoke measures (e.g. water retaining ponds and ditches) in addition to existing Agri-environment Scheme options.	Pond creation sites for Song Thrush are likely to include: <ol style="list-style-type: none"> <li>1. Loddington site of Game &amp; Wildlife Conservation Trust (Leics.). Experimental farm</li> <li>2. RSPB Hope Farm (Cambs). Experimental farm</li> </ol>	
50. Reed Bunting	<ul style="list-style-type: none"> <li>• RSPB</li> </ul>	Breeds in reedbeds, tall rushes and shrubbery on wet ground or at lake margins. Pond creation, ditch restoration and various waterside land	Contributes to priority species action to S2: More research is needed on solutions in pastoral areas, especially the provision of winter seed resources, and on means of	Pond creation sites for Reed Bunting are likely to be widely distributed across partner land holdings.	Pond creation for Reed Buntings is likely to benefit: <ul style="list-style-type: none"> <li>• Song Thrush (BAP species)</li> </ul>

		management options should also be beneficial as long as emergent vegetation is provided along the edges of water bodies.	creating small wet features in farmland. If appropriate trial management solutions.		
51. Yellow Wagtail	<ul style="list-style-type: none"> <li>• RSPB</li> </ul>	Breed on marshy pastures, waterlogged meadows, besides lakes and at sewage farms. Studies show breeding territories were associated with fields previously subject to prolonged winter floods and which contained shallow-edged ponds or wet ditches during summer.	(New BAP species). No BARS targets.	Pond creation sites for Yellow Wagtail are likely to include: <ol style="list-style-type: none"> <li>1. Loddington site of Game &amp; Wildlife Conservation Trust (Leics.).</li> <li>2. Various RSPB sites.</li> </ol>	
52. Tree Sparrow	<ul style="list-style-type: none"> <li>• Thames Water</li> <li>• RSPB</li> </ul>	Tree Sparrows show a marked preference for breeding sites adjacent to aquatic habitats.	Contributes to BARS target: T1: In England, increase the BBS index to 150% of the 2003 level by 2010. In Northern Ireland, Scotland	Pond creation for Tree Sparrows is likely to be undertaken: <ol style="list-style-type: none"> <li>1. In the Upper Thames valley (Wilts/Oxon)</li> <li>2. In the Lower</li> </ol>	Pond creation for Tree Sparrow is also likely to benefit: <ul style="list-style-type: none"> <li>• Reed Bunting</li> <li>• Yellow Wagtail.</li> </ul>

		Wetland habitats may play a key role in providing invertebrate food resources during the breeding season..	and Wales ensure the population is at 150% of the 2010 baseline by 2015. Immediate priority for these countries will be to establish the baseline population.  Contributes to priority species actions:S2: Carry out research to establish species needs and hence identify solutions in pastoral areas S3: Continue dedicated, integrated species recovery action	Windrush Valley (Oxon).	
53. Northern Lapwing	<ul style="list-style-type: none"> <li>• RSPB</li> </ul>	Breeds on arable fields, pastureland or sea- or lakeside meadows.	(New BAP species). No BARS targets. Contributes to priority species actions:S1: Develop and implement a co-ordinated species recovery programme for lapwing.	1. Various RSPB reserves; 2. BBOWT Upper Ray wetland project.	
54. Water Vole ( <i>Arvicola terrestris</i> )	<ul style="list-style-type: none"> <li>• Defence Estates</li> <li>• Environment Agency</li> </ul>	Mainly on well vegetated banks of lowland rivers, ponds, canals	Contributes to BARS Target 1: Maintain the current range (730 occupied 10km	Strensall Common (Yorkshire)	Ponds supporting water voles at Strensall Common also support: <ul style="list-style-type: none"> <li>• Great crested newt (BAP species)</li> <li>• Reed bunting (BAP species)</li> <li>• Diptera (true flies):</li> </ul>

		and drainage ditches.	squares) of water vole in UK. Contributes to priority species actions:S3: Maintain and, where appropriate, extend the area of suitable water vole habitat in National and Regional Key Areas		- <i>Idioptera linnei</i> (RDB Endangered)
55. Soprano Pipistrelle	<ul style="list-style-type: none"> <li>Bat Conservation Trust</li> </ul>	The soprano pipistrelle prefers riparian habitats whereas the common pipistrelle uses a wide range of habitats. Aquatic insects are an important part of the soprano pipistrelle's diet and so they often forage near fresh water habitats.	<p>Contributes to priority species actions:S3: HABITAT BASED ACTION Promote the creation, expansion and improvement of key habitats including wetland and features such as hedgerows and woodland edges.</p> <p>All habitat-based action should ensure maximal foraging opportunities (e.g. species rich hedgerows and diverse wetlands).</p>	<p>Suitable pond creation sites are likely to be widely dispersed.</p> <p>Further discussion will be undertaken with BCT to identify specific sites.</p>	

### **Appendix 3a. Further information about the principles underlying the location of new HAP ponds**

The majority of ponds will be located within larger semi-natural areas: non-intensive lowland grasslands, woodlands, heathland, moorland etc. A proportion will be on farmland and other generally more intensively managed areas but located in small clean catchments within these landscapes – within these areas many such small corners exist where it is still possible to find sources of clean water. This is important because evidence (from our studies of the R. Cole and other catchments) shows that new ponds in these areas support valuable assemblages. Thus, by working in these landscapes we can critically extend the network of clean water in areas where freshwaters (in rivers, streams and most lakes) are otherwise degraded. At individual sites, the aim is to make complexes of waterbodies rather than single pools with a mix of seasonal, semi-permanent and permanent basins to create conditions that will benefit a wider range of species, facilitate maintenance of metapopulations, and which will better address the greater extremes likely to accompany climate change.

### **Appendix 3c. Further information about pond succession and the longevity of ponds that will be created by the project**

Succession, itself a natural process, is benign if sediments are unpolluted and all stages of succession provide valuable habitats: thus new ponds can support important early colonising species which are gradually replaced by mid and late succession species. As ponds become overgrown in later decades and centuries they become richer in plant species and semi-aquatic invertebrates (for example Norfolk Broads turf ponds which are created for their late succession plants). Ultimately succession produces, usually after 100s to 1000s of years, not dry land but temporary ponds: an important and highly threatened habitat type, many of which persist for millennia.

Ponds *do* fill in more rapidly if they have inflows, particularly where these drain farmland and carry considerable silt burdens. We will avoid constructing ponds with inflows – both because inflows greatly increase the risk of pollutants entering ponds and because they reduce pond longevity.

Even for rare species with particular habitat requirements, good pond design and location (e.g. within grazing units) can make most sites self-sustaining. As the number of ponds increases, the need for micromanagement of individual sites is also reduced as meta-population processes, natural dispersal and the inherent heterogeneity of ponds provide landscape-scale protection.

All new ponds will, as far as possible, be designed to be appropriate to the type of biota we expect to develop, and the management regime they will be exposed to in the following years. Practically, however, we will be working with partners who normally have some operational capacity on-the-ground to undertake basic routine land/water management work, if this is required.

Overall, therefore, ponds made by the project will typically persist in good condition for 100s to 1000s of years – effectively making them permanent landscape features.

### **Appendix 3d. Further information about Pond Conservation activities that will support the continuation of the present project**

The Million Ponds project and Pond Conservation's overall development strategy both ensure a strong focus on continuing high quality pond creation.

- (i) the Million Ponds programme is developmentally central to our organisation and lies at the heart of our 10 year aim and, ultimately, the 50 year aim of establishing a million ponds in the UK. The aims of the project are also built into national (Pond HAP, Wetland Vision) and regional plans. In addition, once we have the current project underway we will begin planning the development of pond creation networks in Scotland and Northern Ireland. We also intend to expand our current programme of work with community groups to specifically deliver pond creation programmes, as well as expanding work on the 'ecosystem services' role of pond creation. To that end we are currently developing a major demonstration project with the Environment Agency and others called Water Friendly Farming Landscapes.
- (ii) we intend to expand our organisation, particularly through the launch of our supporters scheme, to increase our capacity to deliver, particularly in the area of on-the-ground pond creation. Under our development plan, which is supported by the Esmée Fairbairn Foundation, we intend to retain and develop our network of project officers on-the-ground in England and Wales to provide long-term support for our partners.

### **Appendix 3e. Further information about climate change adaptation and ponds**

Climate change responses in freshwater animals, mainly range expansions or contractions, can now be seen in a number of groups. Already we are seeing apparent gains in the spread north of common dragonflies, damselflies, water beetles and water bugs, and changes in the breeding season of common frogs and newts. Evidence of negative climate effects include common toads, which are believed to be declining, in part, because of warmer winters. The recent extinction in southern England of the mainly northern White-faced Darter dragonfly could be partly climate related. However, predicting the long-term effects of climate change is extremely difficult: studies of warming in experimental tanks show short-term impacts of temperature increases are limited compared to other stresses; analysis of a small subset of freshwater related BAP species by the MONARCH project, including two pond associated plants (Cut-grass and Floating Water-plantain), birds and bats, suggests that some species will lose, others gain and some will be neutral.

### **Appendix 3f. Defra recommendation in preparation about climate change adaptation and biodiversity conservation for the England Biodiversity Strategy**

In the light of uncertainty about the effects of climate change, a recent working group headed by Defra has made suggestions for "Climate Change Adaptation Principles", currently in draft, which will feed into the new England Biodiversity Strategy.

Our project *directly addresses* all five of the key suggestions for climate-proofing landscapes and species made by this working group, including the foremost suggestion: to *take action now*. In particular, our project will create new networks that will reduce habitat fragmentation and isolation. Our policy of creating mosaic habitats, with waterbodies of different depths and permanence present at a single site, will provide habitats that function well whatever the climatic conditions. Provision of deeper pond sites are known to be particularly important for a wide range of species, terrestrial and freshwater, as landscapes dry up in drought conditions.

The five principles which will be included in the England Biodiversity Strategy are:

- “*Take action now*”: our project strongly addresses this principle (i.e. it delivers on-the-ground in 4 years). Under the take action now heading, the project will “conserve existing biodiversity” by protecting populations of BAP species and help to “reduce sources of harm not linked to climate” because new ponds will create clean water for the long term. It will also use “existing legal and policy frameworks” to deliver this e.g. the Pond Habitat Action Plan, individual Species Actions Plans, Local Biodiversity Action Plans, agri-environment schemes, Wetland Vision, Regional Biodiversity Plans etc.
- “*Maintain and increase ecological resilience*”: the project will contribute to “maintaining diversity in the landscape”, will “maintain existing ecological networks”, and help to avoid “further habitat fragmentation and isolation”. It will also help to buffer sites by “creating the same or complimentary habitats” on adjacent land.
- “*Accommodate change*”: the project obviously helps to “establish ecological networks through habitat restoration and creation”, and to “aid gene flow” by seeking to “maintain or create larger populations”. We will also consider translocation in specific cases - following standard IUCN principles - for key BAP species.
- “*Integrate action across sectors*”: new ponds will help to “integrate policy and practice across land-use sectors”: because ponds occur in every type of landscapes helping to catalyse practical action across land-use sectors. A fundamental part of the project is to “build and strengthen partnerships”, including “partnerships between the public and private sectors” – the current list of groups to involve runs to about 60 organisations. A major objective of the project is to raise awareness of the benefit of new ponds, helping to “raise awareness of benefits of the natural environment to society”.
- “*Develop knowledge*”: the project’s own monitoring, plus Countryside Survey in the longer term, will help us understand the value of the project. Our own datasets provide excellent landscape-level baselines (e.g. from the Coleshill study) which provide the basis for work to “research knowledge gaps with stakeholder participation”.

### **Appendix 3g. Abstracts of research work undertaken by Pond Conservation that underpin the current project**

Williams P., Whitfield M., Biggs J., Bray S., Fox G., Nicolet P. and Sear D. (2004). Comparative biodiversity of rivers, streams, ditches and ponds in an agricultural landscape in Southern England. *Biological Conservation* **115**: 329-341.

*Abstract:* Information about the relative biodiversity value of different waterbody types is a vital pre-requisite for many strategic conservation goals. In practice, however, exceptionally few inter-waterbody comparisons have been made. The current study compared river, stream, ditch and pond biodiversity within an 80 km<sup>2</sup> area of lowland British countryside. The results showed that although all waterbody types contributed to the diversity of macrophytes and macroinvertebrates in the region, they differed in relative value. Individual river sites were rich but relatively uniform in their species composition. Individual ponds varied considerably in species richness, with the richest sites supporting similar numbers of taxa to the best river sections, but the poorest sites amongst the most impoverished for all waterbody types. At a regional level, however, ponds contributed most to biodiversity, supporting considerably more species, more unique species and more scarce species than other waterbody types. Streams typically supported fewer species and fewer unique species at local and regional level than either ponds or rivers. Ditches (most of which were seasonal) were the least species-rich habitat, but supported uncommon species, including temporary water invertebrates not recorded in other waterbody types. Multivariate analysis indicated that permanence, depth, flow and altitude were the main environmental variables explaining invertebrate and plant assemblage composition. The findings, as a whole, suggest that ponds and other small waterbodies can contribute significantly to regional

biodiversity. This contrasts markedly with their relative status in national monitoring and protection strategies, where small waterbodies are largely ignored.

Williams, P., M. Whitfield & J. Biggs, 2007. How can we make new ponds biodiverse? – a case study monitored over 8 years. *Hydrobiologia*: **597**:137-148.

*Abstract.* A new pond complex, designed to enhance aquatic biodiversity, was monitored over a 7-year period. The Pinkhill Meadow site, located in grassland adjacent to the R. Thames, proved unusually rich in terms of its macrophyte, aquatic macroinvertebrate and wetland bird assemblages. In total, the 3.2 ha mosaic of ca. 40 permanent, semi-permanent and seasonal ponds and pools was colonized by approximately 20% of all UK wetland plant and macroinvertebrate species over the 7-year survey period. This included eight invertebrate species that are Nationally Scarce in the UK. The site supported three breeding species of wading bird and was used by an additional 54 species of waders, waterfowl and other wetland birds. The results from four monitoring ponds investigated in more detail showed that these ponds supported significantly more plant and macroinvertebrate species than both minimally impaired UK reference ponds, and other new ponds for which compatible data were available. Comparisons of the physico-chemical, hydrological and land-use characteristics of the Pinkhill pools with those of other new ponds showed that the site was unusual in having a high proportion of wetlands in the near surrounds. It also had significantly lower water conductivity than other ponds and a higher proportion of (non-woodland) semi-natural land in its surroundings. Given that ponds are known to contribute significantly to UK biodiversity at a landscape level, and that several thousand new ponds are created each year in the UK alone, the findings suggest that well designed and located pond complexes could be used to significantly enhance freshwater biodiversity within catchments.

### **Appendix 3h. Similarities between the present project and other pond creation activity in Europe**

On the continent, the project mirrors work done by Lars Briggs, who has initiated large-scale pond creation projects around the Baltic, from Denmark through Poland, Latvia and Estonia. Working with the EU LIFE programme, organisations such as Polish Ministry of Transport, OTOP (The Polish Society for the Protection of Birds) and local landowners, he has had tremendous success in creating new habitats for declining, Habitats Directive priority, amphibians (especially the Fire-bellied Toad, *Bombina orientalis*). Currently he is working with the Stiftung Naturschutz Schleswig-Holstein, the largest nature conservation foundation in northern Germany, on a major pond creation programme (see <http://www.life-bombina.de/index.php?id=7&L=3>).

In the UK, pond creation is undertaken piecemeal by many individuals and organisations across the country. Large numbers of ponds are created in this way: data from the Countryside Survey shows an annual 1% turnover of ponds and in lowland Britain, current estimates from the Countryside Survey indicate that around 1750-2000 ponds a year are added to the lowland countryside.

However, the importance of creating ponds in clean catchments is little appreciated at present, so much of this current pond creation activity does not reach its full potential, creating sub-standard ponds that quickly fill with polluted water and sediment, limiting their biodiversity value and storing up management problems for the future.

The current project differs from all other projects in its nationwide delivery, its strong emphasis on practical delivery of results and its unique range of partners.

### **Appendix 3i. Further information about the approach to be adopted by the project to monitoring of pond creation**

Monitoring of the project will be undertaken using two main approaches: (i) short-term, by project staff and partners and (ii) longer-term, through the Countryside Survey.

*Monitoring:* The success of the project will be monitored as:

- (i) number of high quality ponds delivered, and
- (ii) impact of the project on biodiversity.

This information will:

- Help to ensure that we meet our targets
- Support assessments for the Pond HAP, individual Species Action Plans and Local Biodiversity Action Plan targets
- Enable improvement of our methods and their effectiveness
- Provide feedback information for our network of collaborators
- Provide information for publicity and further project/funding opportunities.

The central co-ordinator and regional project officers will be in direct contact with partners making new ponds and will use the web-based forms of the National Pond Monitoring Network (see [www.pondnetwork.org.uk](http://www.pondnetwork.org.uk)) and direct partner reporting (e.g. LBAPs, SAPs, Ministry of Defence, Natural England environmental land management teams) to give us minimum estimates of new pond sites we directly influence.

Beyond the scope of the current project, but important for its longer term objectives is Defra's Countryside Survey which will provide a statistically robust mechanism for wider monitoring of pond numbers and quality. This will assess the number of high quality ponds produced by the "ripple" effect of the project, beyond our immediate known network. Pond Conservation is a research partner in CS2007 (we jointly co-ordinated the pond component of the project with CEH and are currently analysing the survey results) which will provide a timely baseline for assessment of this effect: with the next Countryside Survey in 2014.

*Evaluation:* We will evaluate success by appraisal of a sub-sample of ponds (10-20%), including:

- (i) on-site check list surveys undertaken by project officers, and
- (ii) a smaller number of more detailed biotic surveys of 2-3 year old ponds to see how they are developing and to help us learn from experience.

Currently, we are also developing plans with the Environment Agency to gather more detailed information about the biodiversity gain of new high quality ponds at regional level. This work will be developed as an independent, though linked, research and development project.

### **Appendix 3j. Detailed description of approach to be taken to dissemination of lessons learnt**

We will learn many lessons during the project: disseminating that information throughout our organisation will help ensure project success. This is especially important since staff, as in the current organisation, will be working at four separate locations. To ensure effective ongoing internal dissemination of lessons learnt, we will build on our current organisational practice, which works well:

- *Good induction:* the skills needed for the project are all present within the organisation, so we will spend time near to the beginning of the project sharing them with each other, with the new southern regional officer and with HCT staff. This 'project induction' will last about

3 weeks and will involve all staff associated with the project. The aim of this induction, and subsequent internal training, will be to ensure that all staff are 'multi-functional' i.e. proficient in giving advice, running workshops, developing policies with partners and proficient in the full range of practical pond creation techniques.

- *Policy of active information sharing within the organisation:* we routinely employ a variety of methods to assist staff to maintain regular and frequent internal communication including: circulating summary notes from internal and external meetings, sharing talk texts and Powerpoint presentations, using shared web-based documents and the staff area of our website to provide common access to information and to manage external requests for information from the public and partners, teleconferencing and circulation of regular news updates by all staff.
- *Internal notice board on our website:* provides a forum where all information relating to the project is stored and shared.
- *Regular (monthly) meetings and site visits* for staff from all regions (sometimes virtual via teleconference) where staff share plans, information and experiences.

#### **Appendix 4. Memoranda of Understanding with partners**

MOUs are have been prepared for organisations shown Appendix Table 1 below. The status of the MOU on April 12<sup>th</sup> is shown in the table.

**Appendix Table 1. Summary of status of Memoranda of Understanding between Pond Conservation and partner organisations in the proposed project**

<b>Organisation</b>	<b>Status of MOU</b>
Defence Estates	MOU agreed; due to be signed off shortly by DE policy team
RSPB	MOU agreed; due to be signed-off shortly by Conservation Director
Ministry of Justice	Sign-off slightly delayed as a result of extended illness of MOJ Biodiversity Coordinator; completion expected shortly
Forestry Commission	MOU in preparation based on draft shown below
Natural England	MOU in preparation following discussions with NE Chief Executive
National Trust	MOU to be drafted in discussion with National Trust staff

## **MEMORANDUM OF UNDERSTANDING BETWEEN DEFENCE ESTATES AND POND CONSERVATION**

### **Background**

Defence Estates will seek to support the aims of Pond Conservation, particularly through promotion of the UK Pond Habitat Action Plan and the Million Ponds Project, via the MOD conservation groups.

The four targets of the UK Pond HAP are set out in Appendix 1 and are listed on the Biodiversity and Recording System (BARS). A copy of the Pond HAP can be viewed at: [www.pondconservation.org.uk](http://www.pondconservation.org.uk).

### **Million Ponds Project – Phase 1 (Pond HAP target 4)**

The specific aim of the Million Ponds Project is to address Target 4 of the Pond Habitat Action Plan.

As part of the Million Ponds Project (Phase 1) MOD Conservation Groups will create new high quality potential pond habitats for Pond HAP Target 4. This work will be undertaken in consultation with Pond Conservation to maximise the potential of the pond habitats succeeding and to ensure that the ponds are well-designed and located. MOD groups will report pond creation work to the DE EST team.

As part of the Million Ponds Project (Phase 1) Pond Conservation will:

- (i) provide Defence Estates with technical advice and guidance materials on the creation of high quality ponds
- (ii) provide training to Defence Estates staff and conservation groups on the location, design and construction of high quality potential ponds
- (iii) Make site visits as appropriate to the larger pond creation schemes (e.g. 5+ ponds) to provide on-the-ground advice

### **Targets 1, 2 and 3 of the Pond HAP**

Pond Conservation will aim to provide Defence Estates with support and advice in implementing the three other HAP Targets, typically through projects that will be developed and funded in parallel to the Million Ponds Project.

#### *Pond HAP Target 1*

To assist with development of national inventory of priority ponds, MOD Conservation groups will be asked to undertake surveys of ponds (water bodies less than 2 ha in size) and submit survey results to DE EST for onward submission to Pond Conservation.

#### *Pond HAP Target 2*

Defence Estates could, in consultation with Pond Conservation, identify a small number of “flagship pond sites” to be the subject of longer term monitoring, protection and reporting programmes.

#### *Pond HAP Target 3*

MOD Conservation Groups will undertake management to restore ponds that are below priority status, with a particular focus on management for specific BAP species. Guidance will be provided by Pond Conservation on appropriate training and methods.

Pond Conservation will contribute to wider understanding of pond habitats within MOD Conservation Groups by providing training in pond survey techniques and the identification of pond flora and fauna.

**Publicity**

Both partners agree that publicity and media arising from the partnership will be handled jointly with an overarching media plan to be agreed in advance of the project start. The Ministry of Defence is unable to participate in the co-branding of press releases.

**Review of this agreement**

The relationship between our organisations will evolve over time and we will keep this Memorandum under review. Key milestones for reviews are the national strategic review for biodiversity conservation in England and Wales (approximately mid 2009) and the completion of Phase 1 of the Million Ponds Project.

## **MEMORANDUM OF UNDERSTANDING BETWEEN THE RSPB AND POND CONSERVATION**

### **General**

The RSPB and Pond Conservation will work together to assist in the implementation of the UK Pond Habitat Action Plan (HAP), particularly through a partnership role in the Million Ponds Project.

The four targets of the UK Pond HAP are set out in Appendix 1. A copy of the Pond HAP can be viewed at: [www.pondconservation.org.uk](http://www.pondconservation.org.uk).

### **Million Ponds Project (Pond HAP target 4)**

The specific aim of the Million Ponds Project is to address Target 4 of the Pond HAP, which is to create new pond sites of high quality potential.

Phase 1 of this work will be implemented under the project '*Creating networks of high quality ponds for the UK Pond HAP*'.

As part of this project Pond Conservation will, in England and Wales:

- (i) provide RSPB with technical advice and guidance materials on the creation of high quality potential ponds
- (ii) provide training for RSPB staff on the location, design and construction of high quality potential ponds
- (iii) provide on-site advice for larger pond creation schemes
- (iii) provide access to a national 'pond digging fund' for pond creation targeted on specific, identified, BAP species (approximately 20% of all ponds).

RSPB is invited to sit on the project steering group.

The initial phase of the project will run in England and Wales. It is intended in due course to extend the work to Scotland and Northern Ireland as funding becomes available.

As part of the project the RSPB will:

- (i) Seek to identify opportunities to create high quality potential ponds on the RSPB reserves.
- (ii) Carry out high quality pond creation.
- (iii) Provide Pond Conservation with data on the number and location of newly created high quality potential ponds, to facilitate monitoring against project and HAP targets.

### **Targets 1, 2 and 3 of the Pond HAP**

Pond Conservation will, as far as is possible given available resources, provide RSPB with support and advice in implementing Targets 1, 2 and 3 of the Pond HAP, typically through projects that will be developed in parallel to the Million Ponds Project.

**Publicity**

Both partners agree that publicity and media arising from the partnership will, as far as is reasonably practical, be handled jointly with an overarching media plan to be agreed at the start of the project.

**Review of this agreement**

The relationship between our organisations will evolve over time and we will keep this Memorandum under periodic review.

**Signatures**

For the RSPB \_\_\_\_\_ Date \_\_\_\_\_

For Pond Conservation \_\_\_\_\_ Date \_\_\_\_\_

## Targets of the UK Pond Habitat Action Plan

### Target 1. Maintain the number of priority pond sites.

Notes for Target 1: The aim of this target is to maintain the *net* number of high quality pond sites. There will inevitably be some turn-over in high quality sites (i.e. some will be lost, and some gained). In addressing this, and other targets, particular emphasis should be placed on maintaining functional pond networks and species meta-populations.

### Target 2. Maintain the quality of flagship pond sites.

Notes for Target 2: the aim is to work directly with a sub-set of c.1% of high quality ponds (“flagship ponds”) to ensure they are monitored and their quality is maintained. This will ensure that critical sites do not degrade. It will also provide case-study information about (a) threats to high-quality sites, and (b) effective means of mitigation. The list of flagship ponds is currently under development.

### Target 3. Restore pond sites priority status to deliver Species Action Plan targets.

Notes for Target 3: The aim is to restore ponds that are below high quality status for pond-associated SAP species, in order to help address the action plan for these species. The target can apply to any pond with a good potential for successful restoration for a SAP species, and can be aimed at improving water quality, or directly managing habitats. Invasive habitat management (e.g. plant clearance, dredging) should be undertaken only where there is little risk of damage to the existing biodiversity value of the pond site.

### Target 4. Create new pond sites of high quality potential.

Notes for Target 4: The aim of this target is to create a new network of ponds with clean water and high biodiversity potential. The provisional definition of high quality potential ponds is “ponds located in areas where they drain a semi-natural surface-water catchment, and are unlikely to be significantly impacted by people in after-use (e.g. stocked with fish)”. Target ponds should be located in a wide range of landscape types to maximise regional biodiversity. Their creation should not damage the value of existing sites or areas. Creation of (a) pond mosaics/complexes, (b) new ponds that increase landscape connectivity or form protective networks, and (c) new sites that are targeted to support pond SAP species are particularly encouraged. Ponds cannot be counted against this target if they are created as mitigation for destruction of existing high quality ponds.

#### ***Definition of terms used***

**Pond site** = pond (or clusters of small ponds) plus the surrounding area that significantly influences the pond.

**HAP pond sites** = Ponds relevant to the HAP targets i.e. high quality pond sites, and other ponds that can be improved to maintain BAP species.

**Flagship pond sites** = a listed subset of the best ponds which will be a particular focus of attention.

## **MEMORANDUM OF UNDERSTANDING BETWEEN MINISTRY OF JUSTICE AND POND CONSERVATION**

### **General**

The Ministry of Justice will work with Pond Conservation to assist in the implementation of the UK Pond Habitat Action Plan, particularly through a partnership role in the Million Ponds Project – Phase 1.

The four targets of the UK Pond HAP are set out in Appendix 1 and are listed on the Biodiversity and Recording System (BARS). A copy of the Pond HAP can be viewed at: [www.pondconservation.org.uk](http://www.pondconservation.org.uk).

### **Million Ponds Project – Phase 1 (Pond HAP target 4)**

The specific aim of the Million Ponds Project is to address Target 4 of the Pond Habitat Action Plan which is to create new pond sites of high quality potential.

Phase 1 of this project will be implemented under the project ‘Creating networks of high quality ponds for the UK Pond Hap’.

As part of the Million Ponds Project (Phase 1) Pond Conservation will:

- (i) provide the Ministry of Justice with technical advice and guidance materials on the creation of high quality potential ponds
- (ii) provide any training needed by Ministry of Justice staff on the location, design and construction of high quality potential ponds
- (iii) provide on-site advice, if needed, for larger pond creation schemes (>5-10 waterbodies)
- (iv) provide access to a limited national ‘pond digging fund’ for pond creation targeted on specific, identified, BAP species (approximately 20% of all ponds to be created by the Million Ponds Phase 1 project).
- (v) act as Joint Lead Partner, with the Environment Agency, for the Prison Service Pond Habitat Action Plan.

A representative of the Ministry of Justice will be invited to sit on the project steering group.

As part of the Million Ponds Project (Phase 1) the Ministry of Justice will:

- (i) undertake an area by area mapping exercise to identify sites where new high quality potential ponds can be created, including ponds benefiting specific UK BAP species.
- (ii) identify a volunteer Ponds Project Officer from Ministry of Justice staff to co-ordinate this project on an area by area basis
- (iii) carry out high quality pond creation as far as is possible given available resources on each of about 60 ‘Stage 1’ and ‘Stage 2’ sites during the course of the project.
- (iv) seek the resources within the Ministry of Justice budget to fund the programme of pond creation outlined above
- (v) provide Pond Conservation with data on the number and location of newly created high quality potential ponds, to facilitate monitoring against project and HAP targets.

**Targets 1, 2 and 3 of the Pond HAP**

Pond Conservation will, as far as is possible given available resources, provide the Ministry of Justice with support and advice in implementing Aims 1, 2 and 3 of the Pond HAP, typically through projects that will be developed in parallel to the Million Ponds Project.

**Publicity**

Both partners agree that publicity and media arising from the partnership will, as far as is reasonably practical, be handled jointly with an overarching media plan to be agreed at the start of the project.

**Review of this agreement**

The relationship between our organisations will evolve over time and we will keep this Memorandum under review.

**Signatures**

For the Ministry of Justice \_\_\_\_\_ Date \_\_\_\_\_

For Pond Conservation \_\_\_\_\_ Date \_\_\_\_\_

## Targets of the UK Pond Habitat Action Plan

### Target 1. Maintain the number of priority pond sites.

Notes for Target 1: The aim of this target is to maintain the *net* number of high quality pond sites. There will inevitably be some turn-over in high quality sites (i.e. some will be lost, and some gained). In addressing this, and other targets, particular emphasis should be placed on maintaining functional pond networks and species meta-populations.

### Target 2. Maintain the quality of flagship pond sites.

Notes for Target 2: the aim is to work directly with a sub-set of c.1% of high quality ponds (“flagship ponds”) to ensure they are monitored and their quality is maintained. This will ensure that critical sites do not degrade. It will also provide case-study information about (a) threats to high-quality sites, and (b) effective means of mitigation. The list of flagship ponds is currently under development.

### Target 3. Restore pond sites priority status to deliver Species Action Plan targets.

Notes for Target 3: The aim is to restore ponds that are below high quality status for pond-associated SAP species, in order to help address the action plan for these species. The target can apply to any pond with a good potential for successful restoration for a SAP species, and can be aimed at improving water quality, or directly managing habitats. Invasive habitat management (e.g. plant clearance, dredging) should be undertaken only where there is little risk of damage to the existing biodiversity value of the pond site.

### Target 4. Create new pond sites of high quality potential.

Notes for Target 4: The aim of this target is to create a new network of ponds with clean water and high biodiversity potential. The provisional definition of high quality potential ponds is “ponds located in areas where they drain a semi-natural surface-water catchment, and are unlikely to be significantly impacted by people in after-use (e.g. stocked with fish)”. Target ponds should be located in a wide range of landscape types to maximise regional biodiversity. Their creation should not damage the value of existing sites or areas. Creation of (a) pond mosaics/complexes, (b) new ponds that increase landscape connectivity or form protective networks, and (c) new sites that are targeted to support pond SAP species are particularly encouraged. Ponds cannot be counted against this target if they are created as mitigation for destruction of existing high quality ponds.

#### ***Definition of terms used***

**Pond site** = pond (or clusters of small ponds) plus the surrounding area that significantly influences the pond.

**HAP pond sites** = Ponds relevant to the HAP targets i.e. high quality pond sites, and other ponds that can be improved to maintain BAP species.

**Flagship pond sites** = a listed subset of the best ponds which will be a particular focus of attention.

## **MEMORANDUM OF UNDERSTANDING BETWEEN THE FORESTRY COMMISSION AND POND CONSERVATION**

### **General**

The Forestry Commission will work with Pond Conservation to assist in the implementation of the UK Pond Habitat Action Plan, particularly through the implementation of the Million Ponds Project.

The four targets of the UK Pond HAP are set out in Appendix 1 and are listed on the Biodiversity and Recording System (BARS). A copy of the Pond HAP can be viewed at: [www.pondconservation.org.uk](http://www.pondconservation.org.uk).

### **Million Ponds Project – Phase 1 (Pond HAP target 4)**

The specific aim of the Million Ponds Project is to address Target 4 of the Pond Habitat Action Plan.

As part of the Million Ponds Project (Phase 1) Pond Conservation will, in England and Wales:

- (i) provide Forestry Commission with technical advice and guidance materials on the creation of high quality ponds
- (ii) provide training to Forestry Commission staff on the location, design and construction of high quality potential ponds
- (iii) specifically, provide guidance on the design, location and siting of ponds to avoid management issues caused by protected species
- (iv) provide access to a limited national ‘pond digging fund’ for pond creation targeted on specific, identified, BAP species (approximately 20% of all ponds).

It is intended in due course to extend the work of the Million Ponds Project to Scotland and Northern Ireland as funding becomes available.

As part of the Million Ponds Project (Phase 1) the Forestry Commission will:

- (i) Seek to identify opportunities to create high quality potential ponds on the forestry estate.
- (ii) Carry out high quality pond creation as far as is possible given available resources.
- (iii) Provide Pond Conservation with data on the number and location of newly created high quality potential ponds, to facilitate monitoring against project and HAP targets.

### **Targets 1, 2 and 3 of the Pond HAP**

Pond Conservation will, as far as is possible given available resources, provide Forestry Commission with support and advice in implementing Aims 1, 2 and 3 of the Pond HAP, typically through projects that will be developed in parallel to the Million Ponds Project.

**Publicity**

Both partners agree that publicity and media arising from the partnership will, as far as is reasonably practical, be handled jointly with an overarching media plan to be agreed in advance of the project start.

**Review of this agreement**

The relationship between our organisations will evolve over time and we will keep this Memorandum under review. Key milestones for reviews are the national strategic review for biodiversity conservation in England and Wales (approximately mid 2009) and the completion of Phase 1 of the Million Ponds Project.

## Targets of the UK Pond Habitat Action Plan

### Target 1. Maintain the number of priority pond sites.

Notes for Target 1: The aim of this target is to maintain the *net* number of high quality pond sites. There will inevitably be some turn-over in high quality sites (i.e. some will be lost, and some gained). In addressing this, and other targets, particular emphasis should be placed on maintaining functional pond networks and species meta-populations.

### Target 2. Maintain the quality of flagship pond sites.

Notes for Target 2: the aim is to work directly with a sub-set of c.1% of high quality ponds (“flagship ponds”) to ensure they are monitored and their quality is maintained. This will ensure that critical sites do not degrade. It will also provide case-study information about (a) threats to high-quality sites, and (b) effective means of mitigation. The list of flagship ponds is currently under development.

### Target 3. Restore pond sites priority status to deliver Species Action Plan targets.

Notes for Target 3: The aim is to restore ponds that are below high quality status for pond-associated SAP species, in order to help address the action plan for these species. The target can apply to any pond with a good potential for successful restoration for a SAP species, and can be aimed at improving water quality, or directly managing habitats. Invasive habitat management (e.g. plant clearance, dredging) should be undertaken only where there is little risk of damage to the existing biodiversity value of the pond site.

### Target 4. Create new pond sites of high quality potential.

Notes for Target 4: The aim of this target is to create a new network of ponds with clean water and high biodiversity potential. The provisional definition of high quality potential ponds is “ponds located in areas where they drain a semi-natural surface-water catchment, and are unlikely to be significantly impacted by people in after-use (e.g. stocked with fish)”. Target ponds should be located in a wide range of landscape types to maximise regional biodiversity. Their creation should not damage the value of existing sites or areas. Creation of (a) pond mosaics/complexes, (b) new ponds that increase landscape connectivity or form protective networks, and (c) new sites that are targeted to support pond SAP species are particularly encouraged. Ponds cannot be counted against this target if they are created as mitigation for destruction of existing high quality ponds.

#### ***Definition of terms used***

**Pond site** = pond (or clusters of small ponds) plus the surrounding area that significantly influences the pond.


**HAP pond sites** = Ponds relevant to the HAP targets i.e. high quality pond sites, and other ponds that can be improved to maintain BAP species.

**Flagship pond sites** = a listed subset of the best ponds which will be a particular focus of attention.

## Appendix 5. Letters of support from Regional Biodiversity Forums

Formal support has been sought from four regional biodiversity forums and letters are attached below. Signed paper copies are available if needed. The remaining forums will be contacted if the project proposal is successful.

### The Yorkshire & Humber Biodiversity Forum

	
Dr Jeremy Biggs Ponds Conservation: The Water Habitats Trust c/o School of Life Sciences Oxford Brookes University Gipsy Lane, Headington Oxford OX3 0BP	<b>Our-ref:</b> → YHBF260308 <b>Your-ref:</b> → <b>Date:</b> → → 26 March 2008

Dear Dr Biggs

**Creating networks of high quality ponds for the UK Pond HAP**

I am pleased to give the support of the Yorkshire and Humber Biodiversity to your application for funding for the project 'Creating networks of high quality ponds for the UK Pond HAP'.

The Yorkshire and Humber Forum (YHBF) is an association of organisations committed to supporting biodiversity through action for sustainable development and to promoting positive partnerships with regional and local agencies, organisations, industries, groups and individuals.

We look forward to working with members of the partnership to help deliver Target 4 of the UK Pond HAP, to create new pond sites of high quality potential.

We are particularly pleased to see that the project aims to provide resources for the creation of ponds for BAP species, as well as bringing together a wide range of partners to enable delivery.

The Yorkshire and Humber Biodiversity Forum very much looks forward to the start of this worthwhile project and we wish you every success with your funding application.

Yours faithfully

**Andrea Shaftoe**  
Deputy Chair Yorkshire and Humber Biodiversity Forum

Direct dial 0113 231 2084  
Direct e-mail [andrea.shaftoe@environment-agency.gov.uk](mailto:andrea.shaftoe@environment-agency.gov.uk)  
Please ask for Andrea Shaftoe ext 2084

Rivers House, 21 Park Square South, Leeds, LS1 2QG  
Customer services line: 08708 506 506  
Email: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)  
[www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

## South East England Biodiversity Forum



Tom Butterworth  
South East Biodiversity Forum  
3<sup>rd</sup> April 2008

Dr Jeremy Biggs  
Director (Policy and Research)  
Pond Conservation

Dear Dr. J. Biggs

**Re: Creating networks of high quality ponds for the UK Pond HAP**

I am writing on behalf of the South East England Biodiversity Forum to indicate that we are pleased to offer our support for the project 'Creating networks of high quality ponds for the UK Pond HAP'.

We look forward to working with members of the partnership to help deliver Target 4 of the UK Pond HAP, to create new pond sites of high quality potential.

We are particularly pleased to see that the project, as well as bringing together a wide range of partners, is also aiming to provide resources for the creation of ponds for BAP species.

The South East England Biodiversity Forum very much looks forward to the start of this worthwhile project.

With best wishes

Tom Butterworth  
Regional Biodiversity Coordinator SE

Natural England, Victoria House  
London Square, Cross Lanes,  
Guildford Surrey GU1 1UJ  
t: 01483 307722  
e: Tom.Butterworth@NaturalEngland.org.uk

## North West Biodiversity Forum

Date: → 31<sup>st</sup> March 2008

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Dr Jeremy Biggs

Director (Policy & Research)

Pond Conservation

School of Life Sciences

Oxford Brookes University

Gypsy Lane, Headington

Oxford

OX3 0DP

¶

¶

Dear Dr Briggs

¶

Creating networks of high quality ponds for the UK Pond HAP

¶

On behalf of the North West Biodiversity Forum, we would like to offer our support for the project 'Creating networks of high quality ponds for the UK Pond HAP' which is being led by Pond Conservation.

¶

The North West Biodiversity Forum is a partnership of public, private and voluntary organisations working together at the regional level to conserve and enhance the biodiversity of the North West for wildlife and people. As such we look forward to working with your project to help deliver Target 4 of the UK Pond HAP, to create new pond sites of high quality potential.

¶

We are particularly pleased to see that the project, as well as bringing together a wide range of partners, is also aiming to provide resources for the creation of ponds for BAP species, a barrier to many projects delivering biodiversity benefits on the ground.

¶

The North West Biodiversity Forum very much looks forward to the start of this worthwhile project, and support your applications for funding of this exciting project.

¶

Yours sincerely

¶

¶

Dr Amanda Wright

¶

Regional Biodiversity Coordinator

On behalf of the North West Biodiversity Forum

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Tel: 07711 847649

Email: [amanda.wright@naturalengland.org.uk](mailto:amanda.wright@naturalengland.org.uk)

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Amanda Wright

Per House

Walkgate

Warrington

WN3 4AL

T

01942 820342

F 01942 614026

## Biodiversity South West



www.swbiodiversity.org.uk  
South West Biodiversity Co-ordinator: Naomi Brookes  
E: Naomi.brookes@swbt.org.uk  
T: 01392 457401  
M: 07919 986680

Dr Jeremy Biggs → → → → → → → → → 1<sup>st</sup> April 2008

Ponds Conservation: The Water Habitats Trust  
School of Life Sciences  
Oxford Brookes University  
Gypsy Lane, Headington  
Oxford, OX3 0BP

Dear Dr Biggs,

**Re: Creating networks of high quality ponds for the UK HAP**

I am writing on behalf of Biodiversity South West to confirm that we are pleased to give our support to your application for funding for the project 'Creating networks of high quality ponds for the UK Pond HAP'.

Biodiversity South West is a partnership of organisations committed to supporting biodiversity through promoting positive partnerships with regional and local agencies, organisations, industries, groups and individuals and fostering and co-ordinating action for biodiversity across the region.

We look forward to working with members of the partnership to help deliver Target 4 of the UK Pond HAP, to create new pond sites of high quality potential.

We are particularly pleased to see that the project aims to provide resources for the creation of ponds for BAP species, as well as bringing together a wide range of partners to enable delivery.

Biodiversity South West very much looks forward to the start of this worthwhile project and working with you in the future. We wish you every success with your funding application.

Yours faithfully,

**Emma Rose Herrera**  
Co-Chair Biodiversity South West

Direct e-mail: @environment-agency.gov.uk

The South West supports a high proportion of one of the UK's rarest land mollusc (snail) and species. It is also one of the region's land snails (designated as nationally and internationally important wildlife sites). It has the highest rate of occurrence for land snails of any region making the local environment particularly significant.

Biodiversity South West aims to promote and enable the delivery of the UK Biodiversity Action Plan through regional and local biodiversity action. It works with the England Biodiversity Strategy. The South West Regional Biodiversity Partnership includes Association of Local Government Ecologists, Natural England, Environment Agency, Forestry Commission, Government Office for the South West, Local BAPs, Local Record Centres, National Trust, RSPB, South West Protected Landscapes Forum, South West Water, South West Wildlife Trust, Wessex Water and Woodland Trust.

10 Malind, England, Regional Office, Level 2, Penstemon House, Southway Road, Beiler Devon, EX4 3WV Tel: 01392 457401, Fax: 01392 437559

## **Appendix 6. Letters of support from partner organisations, and other potential funders**

Letters of support are available from:

Natural England	Support confirmed with Dr Helen Phillips (Chief Executive) in meeting and subsequent emails.
Environment Agency	Letter attached.
Countryside Council for Wales	Support confirmed by Roger Thomas (Chief executive) in meetings and subsequent email;
RSPB	Support confirmed by Dr Mark Avery (Conservation Director).
National Trust	Letter attached.
Forestry Commission	Letter attached.
Ministry of Justice	Support confirmed.
Defence Estates	Support confirmed.
Biffaward	Confirmation of invitation to submit a partnership proposal to flagship grant scheme.