



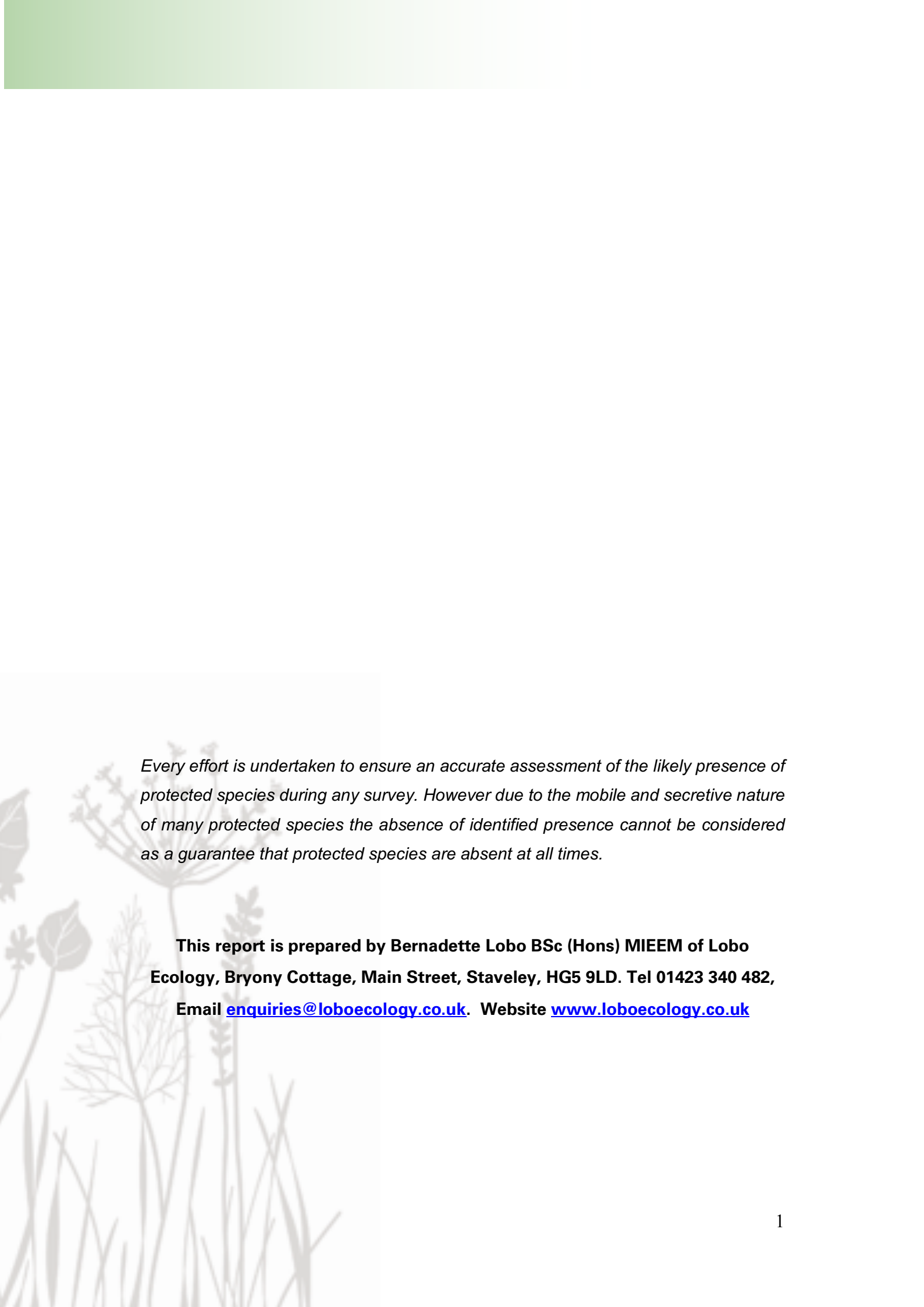
Ecology Report & Opportunities for Enhancement

Ferrensby Village Pond

May 2019

Version 2





Every effort is undertaken to ensure an accurate assessment of the likely presence of protected species during any survey. However due to the mobile and secretive nature of many protected species the absence of identified presence cannot be considered as a guarantee that protected species are absent at all times.

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EXECUTIVE SUMMARY

Bernadette Lobo of Lobo Ecology was asked to carry out an ecological assessment of Ferrensbury Village Pond to identify opportunities for enhancement in support of a funding bid.

The pond is described as a village duck pond bound on all sides by development including the Harrogate Road to the south and a vertical stone wall to the west and therefore opportunities are limited.

The following enhancement options are considered to offer benefits for wildlife on site and seek to improve the water quality of the pond.

- Minimise pollution-Installation of interceptors/ oil filters
- Explore the need for reinforcement of roadside bank using softened gabions
- Planting of pollinator species to area around bus stop
- Interpretation board
- Sculpture created from bird boxes and bug hotels
- Informative DNA test to determine the presence/ absence of GCN.

1. INTRODUCTION

1.1 Background

- 1.1.1 Bernadette Lobo of Lobo Ecology was commissioned to undertake an ecological appraisal of Ferrensby Village Pond in support of a funding bid to Two Ridings.
- 1.1.2 The purpose of the survey is to identify opportunities for ecological enhancement. The works undertaken do not represent a detailed ecological or ecohydrological study of the pond and rather are focused on ensuring any works undertaken provide appropriate ecological enhancement and any likely impacts upon protected species or habitats are identified.
- 1.1.3 It is hoped that this report is accessible to anyone whom chooses to read it. For that reason, as far as possible 'jargon' has been avoided.
- 1.1.4 The site of the pond is not subject to any international, national or local designations.
- 1.1.5 There are no known protected species on site.
- 1.1.6 Ferrensby Village pond is located within a village bound on all sides by development with residential properties beyond.

2. FERRENSBY POND

2.1 Past and Present



Photo 1: View looking northwest over the pond circa early 1900s. A local resident has said he believes the photo shows men removing sediment from the pond when the pond dried up.

- 2.1.1 Ferrensby Village has a long and established history and as are many villages it is first mentioned in the Domesday Book of 1086 as Feresbi.
- 2.1.2 It is speculated that the village had been present for many hundreds of years prior to this, partly due to the nearby Roman village Aldborough (once one of the most important towns in Roman Britain) but also the suspected presence of a spring in the current Ferrensby Village pond.
- 2.1.3 There are a number of sources of water to Ferrensby pond; rainfall, the natural water catchment and two road drains which drain the road to the north and the smaller road/track to the east.

- 2.1.4 Runoff from the road will be contaminated with pollutants and this is an area which if improved (i.e. by interceptors and oil filters) would be a great benefit for the pond and wildlife.
- 2.1.5 It is known that Ferrensby pond rarely dries and therefore it is a reasonable question to ask if the pond is fed in part, by spring water.
- 2.1.6 The Mar at Arkendale which lies approximately 1.5km to the east is a similar pond in being centuries old. However, why The Mar is wet when other ponds are dry is unknown (as experienced in the very dry weather of summer 2018).
- 2.1.7 Anecdotal evidence from a local resident is that the pond is stone/cobble lined.
- 2.1.8 There was no obvious outflow from the pond however the land drain connecting Ferrensby Pond with the Loftus Hill (Fox covert) pond is reported to serve as an outflow in periods of heavy rain.
- 2.1.9 The area around Ferrensby Pond is not within an identified flood zone according to the Environment Agency Flood Map.

2.2 Ferrensby Pond, its Flora and Fauna

- 2.2.1 Ferrensby is bisected by the Harrogate road which runs north to south through the village. The pond is located to the immediate west of Harrogate Road indeed the road forms the southern edge of the pond. To the north and east the pond is bound by two smaller roads and to the west a wall.



Photo 2: Pond looking southwest towards pond wall and Harrogate Road.

- 2.2.2 The banks to the pond have been reinforced with stone to the north and east in the past and this is now collapsing. Walls to the west and south are stone built vertical retaining walls and appear sound.
- 2.2.3 The vegetation to the bank top is largely rank in nature dominated by Dock (*Rumex obtusifolius*), Nettle (*Urtica dioica*), Hogweed (*Heracleum sphondylium*), Dandelion (*Taraxacum officianale*), Ground elder (*Aegopogon podagraria*), Cleavers (*Galium aparine*), Cow parsley (*Anthriscus sylvestris*) , occasional Pendulous sedge (*Carex pendula*) and frequent Creeping buttercup (*Ranunculus repens*). These species indicate that the bank top soil is dry.
- 2.2.4 Amongst this rank community of plants Daffodils have been planted.
- 2.2.5 To the north of the pond the collapsing reinforced wall has created a shallower gradient in to the pond and this has allowed a natural gradation between the water and drier rank grassland with occasional Great reedmace (*Typha latifolia*).

- 2.2.6 To the edge of the open water on the north and eastern side of the pond, rafts of Yellow flag iris (*Iris pseudacorus*) have developed over the last couple of decades - perhaps where the collapsing stone bank has accumulated sufficient substrate (through decaying material) in which the Iris can root (See photo 3).
- 2.2.7 The robust Iris rhizomes will be resistant to trampling by ducks and the softer parts of the plant are known to be unpalatable to ducks.
- 2.2.8 During all surveys these Iris rafts where exposed above the water level. At the interface between the iris rafts and the bank occasional Alder has managed to root.



Photo 3: View looking to the northwest showing Alder rooting at interface of iris raft and bank.

- 2.2.9 During the field surveys no other plants were noted to grow on the Iris rafts.
- 2.2.10 The pond water is deep green to brown in colour and almost certainly rich in nutrients (mesotrophic/ eutrophic - enriched due to inputs from ducks, roads and drains). As a result of this enrichment the pond is

likely to have a high concentration of green algae however further testing would be required to confirm this. There is no risk in green algae and this should not be confused with blue-green algae which can become toxic.

- 2.2.11 It is likely that the pond has not been subject to any silt removal in the last few decades and therefore it is expected that there will be sediment/ sludge to the base of the pond. When disturbed by feeding ducks the sediment will become entrained in the water and the water will appear muddy in colour.
- 2.2.12 There is no discernible submerged, floating or emergent vegetation within the pond as would be expected in a pond of this size, type (range of environmental factors) and supporting ducks.
- 2.2.13 To the south of the pond is Harrogate Road which sits approximately 1.2m above the water level of the pond and reinforced with a stone wall. Planting of generally horticultural species has been undertaken and these are now mature providing cover for birds and ducks.
- 2.2.14 The pond and immediate environs were alive with bird song when visited in June 2019.

2.3 Ducks and Ponds

- 2.3.1 A village pond including the resident ducks are often at the heart of many an English village proving a local attraction and delighting young and old.
- 2.3.2 Ducks, while delightful and a natural part of pond ecology they do impact on the water quality of the pond (along with human influences) and it is expected that levels of ammonia, phosphate and nitrate will be higher than a pond where ducks are absent. These are the nutrients mentioned in the previous section.

- 2.3.3 Ducks also impact on pond vegetation both within the pond and upon the pond banks by grazing vegetation indeed they can entirely denude a pond and its banks of vegetation. The loss of vegetation in the pond is a reduction in habitat for amphibians and insects.
- 2.3.4 It is reasonably likely that fish will not be present in the pond due to the fact that ducks are omnivorous, eating a wide range of food. They will predate upon any small fish and secondly, had any larger fish been introduced there is unlikely to be a sufficient food source to sustain them due to competition for food between ducks and fish.
- 2.3.5 The duck most common on Ferrensby Village Pond is the Mallard and breeding does occur. As is typical for Mallard there is a high rate of mortality and loss is further increased through the presence of road vehicles in close proximity to the pond. The result being that the population is fairly static.
- 2.3.6 Breeding will take place where there is sufficient cover and it is also understood breeding occurs in nearby gardens.
- 2.3.7 Mallard are known as surface feeders or 'dabbling ducks' meaning they do not dive for food. However, there is plenty of anecdotal evidence to suggest that they can and do dive to feed.
- 2.3.8 The Game and Wildlife Conservation Trust suggest that Mallard normally feed within the first 40cm from the surface.
- 2.3.9 Regardless, this is not to suggest that all ponds should not have ducks. But, it is useful to appreciate the impact ducks have upon ponds and wider wildlife when considering enhancement for wildlife so that achievable recommendations are made.

2.4 Great Crested Newts

- 2.4.1 At the request of Harrogate Borough Council an assessment was made for the likely presence/ absence of Great crested newt (GCN).
- 2.4.2 GCN are a European protected species. GCN, their eggs, breeding sites (ponds) and resting places are strongly protected by law. Any activities likely to break the law require a licence permitting derogation from the law along with appropriate measures to ensure survival of the species.
- 2.4.3 The local area around Knaresborough is known to support the protected Great crested newt (GCN).
- 2.4.4 In the first instance an assessment is undertaken to determine the likelihood of the pond to support GCN this take the form of a desk study followed by a habitat suitability index (HSI) assessment. When a pond scores a high HSI score it is an indication that a pond is more likely to support GCN than a lower scoring pond.
- 2.4.5 THE HSI assessment assigns a score for 10 parameters which are;

HSI Score			
SI1	Location		1
SI2	Pond Area		1
SI3	Pond Drying		0.9
SI4	Water Quality		0.33/0.67
SI5	Shade		0.8
SI6	Fowl		0.01/0.67
SI7	Fish		0.67
SI8	Ponds		0.9
SI9	Terrestrial Habitat		0.33
SI10	Macrophytes		0.3/0.3

- 2.4.6 The HSI assessment for Ferrensby pond is assessed as 'poor' or 'below average' dependent upon the scores for each parameter. A poor score assumes poor water quality and significant impacts by water fowl. An 'below' score assumes moderate water quality,

moderate impact by water fowl and moderate terrestrial habitat. In effect the HSI index is a guide to the suitability of the pond for GCN but alone is not conclusive.

- 2.4.7 A desk study was undertaken to identify any known populations of GCN locally.
- 2.4.8 Harrogate Borough Council ecologist noted the presence of GCN at a pond approximately 500m to the northwest of Ferrensbury Village Pond.
- 2.4.9 Typically, GCN remain in close proximity to breeding ponds once their brief spell in water to breed is complete. Their preference is to then take shelter in adjacent semi-natural habitat coming out to feed at night. Semi-natural habitat offers structure in which they can find suitable shelter and later in the year suitable hibernation sites. Jehle (2000) found identified a terrestrial zone of 63m, within which 95% of summer refuges were located. Further, after the breeding season 64% of newts were recorded within 20m of the pond edge.
- 2.4.10 However, while it is reasonably safe to assume the pond at Ferrensbury is not a significant breeding pond for GCN by virtue of poor terrestrial habitat, poor aquatic habitat, inhospitable habitats surrounding the pond (i.e. roads and walls) and lack of connectivity with other ponds (no ponds within 500m) it remains possible that GCN may on occasion utilise the pond. For this reason it is a suggestion of this report that funding is sought for a one off DNA test to undertaken to determine the presence/ absence of GCN.
- 2.4.11 It is not considered that any of the works proposed to the pond will impact on GCN or GCN populations in the local area.



Photo: Great crested newt-should you ever come across one!

3. ASSESSMENT and RECCOMENDATIONS

3.1 Assessment

- 3.1.1 Ferrensby Village Pond including the resident ducks, is a valued asset in the village. The purpose of this assessment is to identify appropriate and achievable ecological enhancements which will realise gains for wildlife at the site without removing ducks but at the same time not encouraging the ducks.
- 3.1.2 The pond is a village duck pond bound by roads on three sides and a retaining wall on the other. Further, road runoff enters the pond from two road drains; enhancement should be realistic and mindful of these constraints.
- 3.1.3 The roads impact in two ways firstly they isolate the pond creating a barrier between the pond and the wider landscape. Secondly the runoff from the roads will carry pollutants from the road in to the pond (this is discussed further below).
- 3.1.4 The ducks present on the pond appear to be relatively static in number (observation and anecdotal evidence), their numbers being managed by natural causes and the close proximity of the road where ducks are killed by road vehicles.
- 3.1.5 Ducks will add nutrients in the form of droppings to the water of the pond and this in turn, along with other factors, will determine the insect species that are able to live in the pond.
- 3.1.6 Ducks will also graze almost any vegetation in and out of the pond.
- 3.1.7 There is limited opportunity for creation of semi-natural habitat due to lack of space between the pond and the roads however the

existing vegetation while described as rank is of value providing structure the pond edge and habitat for terrestrial insects.

- 3.1.8 The pond is assessed as unlikely to support GCN due to the presence of ducks, lack of in-pond vegetation, no nearby ponds and low connectivity with semi-natural habitats.

3.2 Recommendations

- 3.2.1 The following opportunities are identified and each option discussed individually below.

- Minimise pollution-Installation of interceptors/ oil filters
- Explore the need for reinforcement of roadside bank using softened gabions
- Planting of pollinator species to area around bus stop
- Interpretation board
- Sculpture created from bird boxes and bug hotels
- Informative DNA test to determine the presence/ absence of GCN.

Installation of interceptors/ oil filters.

- 3.2.2 During periods of rainfall water collects on roads and drains in to the pond. This runoff from roads will be polluted with all manner of unpleasant and/ or unsightly matter including oil, fuel, brake fluid, tyre plastics, grit, salt, dog faeces etc. The products resulting from the wear and tear of tyres and the road surface will also find their way in to the pond.
- 3.2.3 Cumulatively road runoff will impact negatively upon the pond.
- 3.2.4 The installation of interceptors would serve to significantly reduce contaminated/ polluted runoff in to the pond.

- 3.2.5 It may be possible to explore options for the interceptors to be 'adopted' by the local highways authority was installed to ensure maintenance going forward.

Interpretation Board

- 3.2.6 An interpretation board may be considered as part of the funding bid with a theme of describing the value of ponds in the landscape, their history and the wildlife that uses them.
- 3.2.7 A brief informative explaining why ducks should be fed sparingly at ponds would be of value.

Green Gabion Baskets

- 3.2.8 Large stone has been used in the past to stabilise the banks of the pond to the north and east however this has now collapsed.
- 3.2.9 It is not clear why the existing stone reinforcement has collapsed as there is no evidence to suggest active erosion to the east bank while there is some erosion to the north bank where the bank gently grades in to the pond.
- 3.2.10 In the event that the banks do require stabilisation it may be possible to use green gabion baskets.
- 3.2.11 Gabion baskets are rigid wire baskets filled with laid stone. They have a longer life than simply laying stone and can now be lined with coir (or similar) to soften. However, this is unlikely to be a cheap option.
- 3.2.12 The baskets can be planted but if backfilled with soil however any planting will need to consider grazing ducks.

- 3.2.13 Gabion baskets are unlikely to be a cheap option and it is advised that further investigation is undertaken to determine the need for reinforcement. It is accepted that investigation may have already been undertaken and the need and the need confirmed.
- 3.2.14 Any in-pond works must avoid the breeding bird season to avoid disturbance to breeding birds.

Planting to Pond Edges

- 3.2.15 As stated previously ducks will eat almost anything, Yellow flag iris clearly an exception!
- 3.2.16 There is no proposal for pond or pond edge planting as part of the recommendations of this report. Existing vegetation appears natural and clearly adapted to the presence of ducks.

Iris rafts

- 3.2.17 The Iris rafts that have developed to the eastern edge of the pond creates a sinuous edge which serves to lengthen the pond edge and also adds structure to the pond.
- 3.2.18 Iris is known as a vigorous pond plant and can become invasive if not managed. However, Google Earth shows that the plant has only spread slowly since 2002 when the rafts are barely visible on Google earth.
- 3.2.19 It is considered that there is no imminent requirement to remove the Iris at the present time however, it should be monitored. Yellow flag iris does not grow in deep water i.e. does not grow in water deeper than approx. 30cm. and this may serve to constrain further spread of the plant. If, however sediment is building up within the pond or

decaying matter accumulates (as it will be in the rafts) the Iris will find opportunity to spread.

Planting for Pollinators

- 3.2.20 There has been a widespread decline in pollinators as identified in recent research over the last three decades with many lost from a quarter of the habitats they occupied in 1980. The suspected cause of these losses is well known namely, habitat loss and pesticide use.
- 3.2.21 Any small contribution to provide nectar and pollen for pollinators will be a benefit.
- 3.2.22 To the northern most part of the pond is a bus stop around which there are opportunities for establishing shrubs that will be of benefit for pollinators and being shrubs will tend to be less attractive to ducks.
- 3.2.23 The species advised take account of limited space and requirement for minimal management. Species are not limited to native wild plants on the basis that the pond is not located in a semi-natural habitat. It is advised that larger/ mature plants are planted, as younger more tender plants may be vulnerable to grazing by Ducks!
- 3.2.24 Shrubs for pollinators would include Buddleia (Davidii, Sungold both known to be good for pollinators by Lobo Ecology) and easy to care for/ manage. Skimmia japonica is another good pollinator which may require some care after planting until established.
- 3.2.25 It is not known if Ducks will eat the following plants but as they are good for pollinators they may be worth in the area around the duck pond; Pulmonaria (*Pulmonaria officinalis*) and Borage (*Borago officinalis*).

Bug Hotel and Bird Box Sculpture.

- 3.2.26 A somewhat more unusual idea is a local competition to design a sculpture/ structure of bird boxes and small scale bug hotels. The winning sculpture, being made by a local handy person and erected to the ground around the pond.
- 3.2.27 The sculpture would need to be positioned in an area where it receives some sunlight, at least dry in some areas, away from exposed areas/ sheltered and safe from vandalism and able to be secured to the ground or a wall.
- 3.2.28 The sculptural design should be driven by maximising opportunities for wildlife including pollinators and birds.
- 3.2.29 There are numerous designs for bug hotels to be found on the internet.
- 3.2.30 One of the best big hotels I have seen is shown below, designed and made by Conservation and Access based in the south of England.



A wonderful example of Bug hotel 5*

eDNA Test for Great Crested Newts

- 3.2.31 It is possible to test the water of ponds for the DNA of Great crested newts to indicate the presence or absence GCN.
- 3.2.32 For approximately £200 test kit can be purchased, water collected from the pond and the sample sent off for analysis.
- 3.2.33 The data collected from this will be useful to guide pond works and add to the knowledge of GCN distribution across the area.

END