



## **Cray's Pond, Berkshire**

### **POND MANAGEMENT REVIEW AND RECOMMENDATIONS**



**For Goring Heath Parish Council**

**GPM Ecology, 8<sup>th</sup> November 2022**

## 1.0 SUMMARY

Goring Heath Parish Council commissioned GPM Ecology to conduct an eDNA great crested newt (GCN) survey, review existing survey information and provide management recommendations. The survey included an eDNA sampling and Habitat Suitability survey on 28<sup>th</sup> June 2022, with no GCN eDNA recorded as present in the pond, though the pond had an 'good' suitability for GCN presence. The key management recommendations for the forthcoming years include the removal of willow that has formed an island on the north side of the pond, within the pond during this autumn period; for the pond to be de-silted; and removal of trees overtime around the pond to create wood-pasture. It is also recommended that:

1. Follow-up surveys to the method of R. d'Ayala and R. Aquilina, Ecological Consultants (2014<sup>1</sup>) conducted to review pond status after these more extensive management works.
2. A Parish-wide assessment of ponds at the landscape level could take place to aim for ponds in the landscape to have a variety of natural states. Parish-wide surveys could also focus on the presence of GCN and Pennyroyal, both requiring ponds at an open, early successional state. [PENNYROYAL-RARE-SPECIES-RECORDING-SHEET-FINAL.pdf \(freshwaterhabitats.org.uk\)](https://www.freshwaterhabitats.org.uk/PENNYROYAL-RARE-SPECIES-RECORDING-SHEET-FINAL.pdf)
3. The history of the pond should be considered by a local History Society (if active), to determine the pond's origins as the namesake of this Village and whether the origins of the road name Pennyroyal could be due to the presence of this aquatic plant in the area.

## 2.0 INTRODUCTION AND BACKGROUND

The pond was surveyed in 2010 and 2014 by d'Ayala and Aquilina Ecological Consultants (2014<sup>1</sup>) who noted that:

1. Water chemistry surveys indicate that blocking drainage pipes and gullies and or creating soak away gullies has resulted in the water in the pond being significantly cleaner in 2014 than in 2010.
2. A total of 28 species of macrophyte (but no notable species) were observed over both years. 50 aquatic invertebrates were recorded (22 in 2010 and 38 species in 2014). The only amphibian recorded previously is common frog and the only water bird is moorhen and mallard. No fish were observed during both years.
3. Two roadside gullies were created after 2010 to act as soak aways for road water off the crossroads. The gully closest to the crossroads takes most of the water, with the southernmost gully apparently being mostly dry. Even after heavy rain the gullies soon drain the road with no water entering. The main gully has an obvious layer of accumulated oil on the surface of the gully, with chemicals no longer entering the pond.
4. It would be useful to undertake surveys for amphibians every year for the next two or three years to confirm or otherwise the number and status of amphibian species present in the pond.

The report goes on to recommend the following specific habitat management recommendations:

**1. Open Western Bank** - *In the central open treeless part of the western bank undertake regular yearly rotational cutting to maintain a more diverse structure including shorter vegetation and more open water habitats. In winter 2014 / 2015 cut 75% of the area i.e. the whole of the central part leaving two outer strips as cover. In subsequent years divide the area into four blocks, cutting 2 of these in the autumn (September / October),*

*alternating the blocks cut each year. To “protect” the shallows from too much disturbance and provide an area of permanent cover leave a fringe of taller plants c. 1 metre wide parallel with the bank of the pond above the managed zone (this zone being cut on an occasional basis only).*

**2. Weeping Willow on Western Bank** - *This mature non-native standard tree is a dominant landscape feature of the site, which casts high level of shade over the adjacent section of pond. The best management of the tree in an ecological sense would be to reduce this level of shade by either pollarding the tree or felling it. The prominence of the tree means decisions about its future need to be made for more than one reason and hence no firm suggestion is made in this report. If felling was an acceptable option it is suggested it could be replaced with a smaller less dominant native species, for example Rowan.*

**3. Willows on Western Bank** - *The mature Willows towards the north of the western bank should be coppiced more or less in their entirety (leaving a small number of short stems) in the winter of 2014 / 2015 and subsequently manage the trees by rotational cutting (perhaps on a three or four year cycle) in the autumn / winter. All cut material to be stacked on site on ongoing habitat piles.*

**4. Northern Bank** - *Review the number and type of trees and if required carry out some very light clearing including coppicing shrubs and/or clearing overhanging branches including over the main stand of Sedge located approximately half way along the bank, to increase the light levels for this plant. The management of this bank should be very light, sufficient to maintain it as open woodland. All cut material to be stacked on site on ongoing habitat piles.*

**5. Eastern Bank** - *There is scope to create a more varied structure on this side of the pond, including 3 management zones. Zone 1: Clear on a permanent basis clear 3 pond side bays covering c. two thirds of the length of the bank on this side of the pond. These bays to be created in winter 2014 / 2015. Subsequently manage these bays as open habitats with no scrub. Zone 2: Divide the next zone including the fingers of scrub between the open pond side bays into four units and manage these blocks on rotation cutting on a four year cycle. This clearing work to be started in winter 2014 / 2015 or 2015/2016 depending on available resources. Zone 3: Retain a strip of dense unmanaged wood including under storey and canopy trees along the boundary of the site. All cut material to be stacked on site on ongoing habitat piles.*

**6. Southern Bank** - *The management of this bank should continue the current regime i.e. maintaining a partially open strip adjacent to the pond and a dense continuous unmanaged woodland strip along the boundary of the site (see above). It is suggested that in any one year no more than 20% of the near pond trees / scrub are managed in any one year. All cut material to be stacked on site on ongoing habitat piles.*

This historical pond in the centre of the village is present on first Edition six-inch (1877) OS Maps, as a relatively straight-sided rectangular structure, which seems to have increased in size slightly, expanded towards the roadside, sometime between 1877 and 1914. The aspect Cray's Pond in the 1877 to 1914 pond appears more open, than its current state, surrounded by trees and the road name Pennyroyal, suggests that this species *Mentha pulegium* may have been present in the area and vicinity of the pond in the past, when it had a more open aspect. The origins of the pond and its historical uses are not currently known by the Parish Council. Two 'Beer Houses', the White Lion and Stag & Hounds, are marked on both Maps adjacent Crays Pond despite it being a fairly remote location. Historical photos of the White Lion indicate that the environment around Crays Pond was previously more open, even relatively recently in the 1960s and wetland species such as Pennyroyal may have been present even up to the latter half of 20<sup>th</sup> Century.

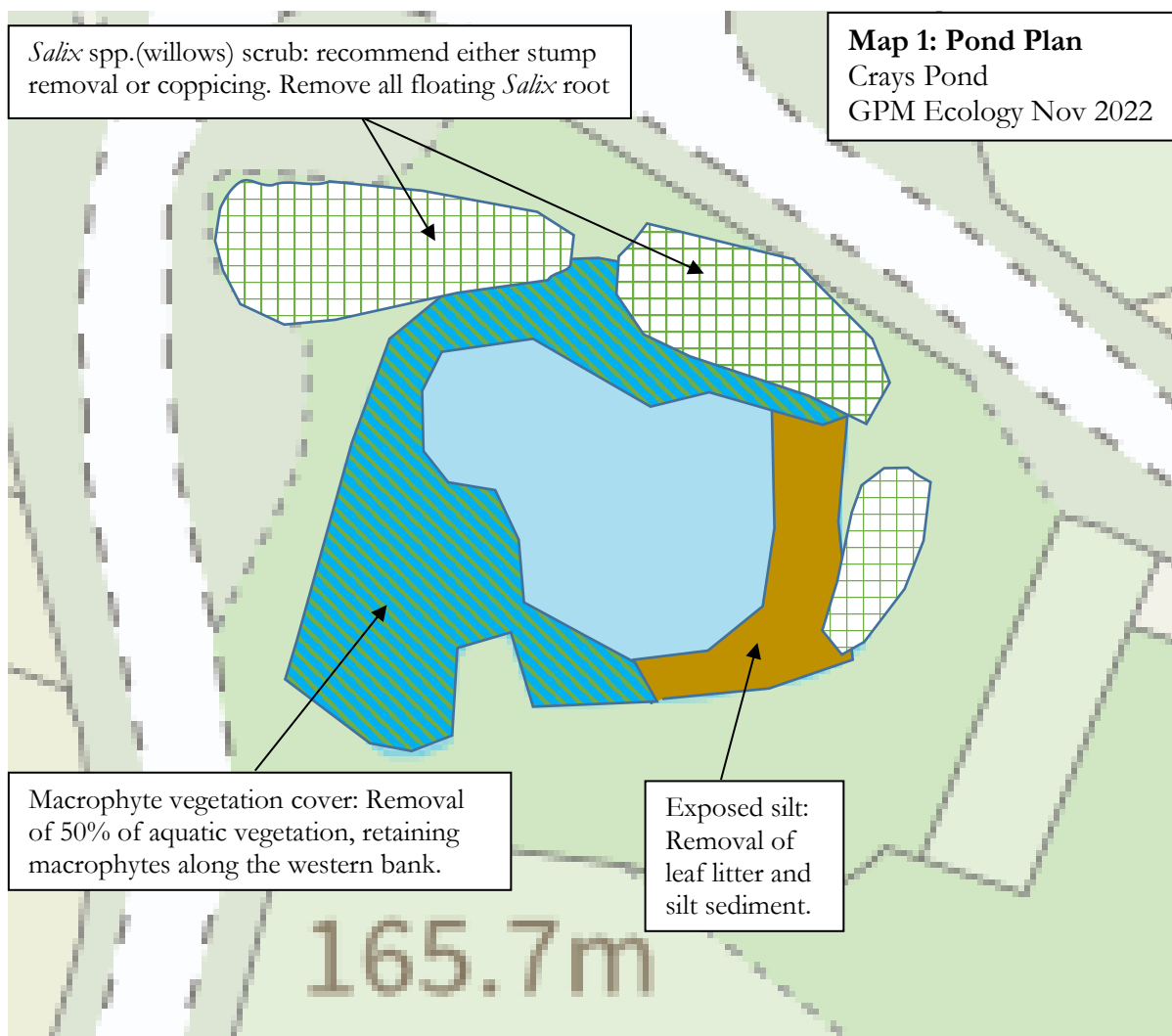
The current survey included sampling for great crested newt (GCN) eDNA and a review of existing data towards the provision of management recommendations. The survey was

commissioned on 15<sup>th</sup> June 2022 by Goring Heath Parish Council, which has an administrative area covering just over 1,110ha. GCN have been recorded on the southern side of the Parish at SU 637 782, about 2.5km from Cray Pond just south of Whitchurch Hill, during a survey of a pond with GCN recorded during survey visits between 13<sup>th</sup> April and 14<sup>th</sup> May 2015 ([www.magic.gov.uk](http://www.magic.gov.uk)).

### 3.0 METHOD

The pond is located next to a cross-road and is public accessible as indicated on **Map 1**. On 28<sup>th</sup> June 2022 during early evening a great crested newt (GCN) eDNA sampling kit was used to determine presence or likely absence of GCN in the pond. In addition, a GCN habitat assessment was conducted by ecologist and herpetologist Gareth Matthes (see **Appendix I**). The habitat survey provided a description of dominant vegetation within each pond and immediate surrounding, including the physical structure of the ponds. A Habitat Suitability Index (HSI) assessment also took place to determine the suitability of the pond for GCN.

### 4.0 SUMMARY OF RESULTS AND MANAGEMENT RECOMMENDATIONS



#### 4.1 Habitat assessments

**Appendix I** provides a summary description of key habitat features and the Habitat Suitability Index (HSI) for great crested newts (GCN). The habitat survey indicates common, ubiquitous species present in line with the 2014<sup>1</sup> survey results.

#### 4.2 Amphibians assessment

Great crested newts (GCN) were confirmed likely absent during eDNA tests (**Appendix I**), but the HSI indicates the pond and landscape appear to be 'good' for GCN and they have been known to be breeding about 2.5km south of the site in Whitchurch Hill. Smooth Newts *Lissotriton vulgaris* were recorded on 28<sup>th</sup> June after dusk in the pond shallows.

#### 4.3 Pond Management

It is recommended that the pond is de-silted mechanically using an excavator (see **Map 1**), with the willow-scrub on the northern side of the pond removed, coppiced and/or pollarded. Silt is naturally deposited in ponds and overtime trees such as willow colonise the margins, with pond generally succeeding towards a woodland state, unless there is an element of human intervention or silt is naturally removed from the system, such as ponds on-line to water-courses.

While the sentiments of the 2014 management recommendations are sound, pond are no longer managed to the extent that they used to be and it is recommended that more extensive woodland management takes place. Removal of trees around the pond margins will reduce the number of years before which the pond will need to be de-silted and important for key species such GCN and pennyroyal breed.

If space permits silt and chippings could be re-distributed under wood-canopy or it will need to be removed off-site. The best time for silt-removal to take place is during early Autumn when the pond is at its lowest level and many of the pond invertebrates and amphibians have finished breeding. It is further recommended that woodland around the pond is thinned overtime to create more open, wood-pasture type habitat, which may also be conducive to key notable species such as GCN and pennyroyal.

#### 4.4 Pond Monitoring

It is recommended that the following monitoring is considered:

1. Follow-up surveys by or along the same methodology as R. d'Ayala and R. Aquilina, Ecological Consultants (2014<sup>1</sup>) should be conducted to review the ponds natural status after the more extensive management works to remove silt and tree canopy as described above.
2. Ponds in Goring Heath would benefit from a general audit within the wider Parish landscape, possibly carrying out GCN Habitat Suitability Index assessments, including looking at the current 'successional' states of ponds and eDNA testing those with a high HSI-score. Future works could potentially be funded by GCN (DLL) District Level Licensing scheme. In addition to GCN a key species to consider during a pond audit is Pennyroyal.
3. The pond is likely to have had a previous community or industrial use and the pond's history could be studied by a local history society and to determine whether the origins of the road name Pennyroyal are due to the presence of this notable aquatic plant in the area.

## APPENDIX I: HABITAT SUITABILITY INDEX (HSI) FOR GREAT CRESTED NEWTS AND eDNA RESULTS

<b>Background Information</b>						
<b>Pond Number:</b>	1 Crays Pond					
<b>National Grid Ref:</b>	SU 6373 8051					
<b>Owner / Contact:</b>	Goring Heath Parish Council - goring.heath.parish.council@gmail.com					
<b>Access:</b>	At cross-roads between the B4526 (Pennyroyal) and B471 (Goring Road)					
<b>Habitat Suitability</b>						
<b>Location (SI<sub>1</sub>):</b>	Good location					
<b>Pond Area (SI<sub>2</sub>):</b>	Approx. 850m <sup>2</sup> (0.085ha)					
<b>Permanence (SI<sub>3</sub>):</b>	Permanent pond, with deep silt (historical appears present on 1877 Maps)					
<b>Water Quality (SI<sub>4</sub>):</b>	Poor quality - due to deep leaf litter					
<b>[Turbidity: 1-5]</b>	[2 - top water-column relatively clear]					
<b>Shading (SI<sub>5</sub>):</b>	40% secondary oak, holly and cherry copse					
<b>Waterfowl (SI<sub>6</sub>):</b>	Present, moorhen, but low number					
<b>Fish (SI<sub>7</sub>):</b>	Likely absent due to extent of silt However, could support species such as Eel.					
<b>Pond Density (SI<sub>8</sub>):</b>	At least 1.9/km <sup>2</sup> [or about 6 ponds in a 1km square around Crays Pond]					
<b>Habitat (SI<sub>9</sub>):</b>	Good - Mature gardens, hedges and woodland					
<b>Macrophytes (SI<sub>10</sub>):</b>	About 30% cover <i>Typha</i> (reedmace), <i>Carex</i> (sedges), <i>Iris</i> , <i>Epilobium</i> (willowherb) and <i>Mentha aquatica</i> (watermint)					
	0.78 HSI-score					
<b>Survey results</b>						
eDNA survey only						
Surveyors	Date	Eggs	Torching	Traps	Min/max	Other information
GPM	28-Jun	-				smooth newts noted
<b>Presence / absence:</b> Likely absence <b>Population size class:</b> N/A						
Although considered likely to be absent, GCN are within wider the landscape (2.5km south of Cray's Pond).						

Client: Gareth Matthes,  
GPM Ecology



ADAS  
Spring Lodge  
172 Chester Road  
Helsby  
WAG 0AR

Tel: 01159 229249  
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: ADAS-5801      Condition on Receipt: Good      Volume: Passed  
Client Identifier: Crays Pond      Description: pond water samples in preservative  
Date of Receipt: 04/07/2022      Material Tested: eDNA from pond water samples

Determinant	Result	Method	Date of Analysis
Inhibition Control <sup>†</sup>	2 of 2	Real Time PCR	08/07/2022
Degradation Control <sup>‡</sup>	Within Limits	Real Time PCR	08/07/2022
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	08/07/2022
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 <sup>-4</sup> ng/μL) <sup>‡</sup>	4 of 4	Real Time PCR	As above for GCN

Report Prepared by: Dr Helen Rees      Report Issued by: Dr Ben Maddison

Signed:

Signed:

Position:

Director: Biotechnology

Position:

MD: Biotechnology

Date of preparation:

11/07/2022

Date of issue:

11/07/2022

*eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.*

*\* If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

*<sup>†</sup> Recorded as the number of positive replicate reactions at expected C<sub>i</sub> value. If the expected C<sub>i</sub> value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.*

*<sup>‡</sup> No degradation is expected within time frame of kit preparation, sample collection and analysis.*

*\*Additional positive controls (10<sup>-1</sup>, 10<sup>-2</sup>, 10<sup>-3</sup> ng/μL) are also routinely run, results not shown here.*