United Environmental Services Ltd
1 Booths Park,
Chelford Road,
Knutsford,
Cheshire
WA16 8QZ

www.ues.org.uk
enquiries@ues.org.uk
01565 757788

GREAT CRESTED NEWT POPULATION SIZE CLASS ASSESSMENT

At

The Oaks
Wrexham Industrial Estate
Wrexham
LL13 9RG

NGR: SJ 38806 49238

Prepared for:	Boris Byrne, FI Facilities Management Ltd
Written by:	Bethan Beeston, UES Trainee Ecologist
Approved by:	Tom Kenwright, UES Senior Ecologist

Tom Kenwright

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EXECUTIVE SUMMARY

This report is written by Bethan Beeston Trainee Ecologist for United Environmental Services (UES) Ltd. It provides an assessment of the potential impacts on great crested newts (GCNs) *Triturus cristatus* as a result of a proposed development at The Oaks, Wrexham Industrial Estate, Wrexham.

A GCN impact assessment of onsite and offsite ponds and ditches was undertaken by UES in April 2023, including eDNA analysis (see report reference UES03918/22). Six ponds and a single ditch are present on site and an additional 18 offsite waterbodies lie within 500m of the survey boundary.

Of the seven onsite waterbodies, only Ponds 2 and 3A returned positive eDNA results. Ponds 3 and 4 were not subject to eDNA analysis as GCN presence was confirmed through the presence of eggs.

Following the confirmation of GCN presence on site, GCN population size class assessment (PSCA) surveys were undertaken by UES of Ponds 3, 3A and 4 by across May and June 2023. The objective of the surveys was to assess the size of the GCN population within each pond, in order to inform the necessary mitigation measures for the proposed development to proceed. PSCA surveys were not undertaken of Pond 2 as it was found to be dry / holding insufficient water at the time of the survey. An updated eDNA survey was undertaken of Pond 2 in May 2024, the results of which were negative indicating an absence of GCNs. No access was granted to undertake further GCN presence / absence or PSCA surveys of any offsite ponds.

During the PSCA surveys, no GCNs were observed within Pond 3A. A single GCN was observed within Pond 4 on two separate survey visits. A medium population of GCNs was observed within Pond 3, with a peak count of 48 individuals. GCN eggs were observed in Ponds 3 and 4, laid on water forget-me-not *Myosotis scorpioides* and willowherb *Epilobium sp.*

All other waterbodies on site are considered to be unsuitable for GCNs or their absence has been confirmed through eDNA analysis.

Whilst positive eDNA results were returned, Pond 3a is not considered to be suitable for use by breeding GCNs due to its small size and lack of sufficient egg-laying opportunities. This is evidenced through the PSCA survey results which found no GCN to be using the pond and no evidence of GCN egg laying. It is considered that the very low number of positive eDNA replicates returned for the pond (2/12) likely indicates either a false positive result, or the use of the pond by a single or very low number of GCNs in a temporary capacity, likely for foraging or on an exploratory basis.

A peak count of 48 individuals was observed during the surveys and almost all GCN activity was confined to Pond 3 and to the eastern section of the site. As such, it is considered that the site supports a medium population of GCNs and Pond 3 is a locally important feature for GCN and contributes towards the nationally important status of the GCN meta population within the wider Wrexham Industrial Estate.

Detailed development plans have not been submitted to UES at this stage, however the proposals are likely to be limited to the construction of an industrial / commercial unit within the western section of the site. As such, all ponds with confirmed use by GCN will be retained and protected as part of the proposals. Depending on confirmation of the final development

proposals and location, it is considered that the proposals may be located a sufficient distance from all known GCN ponds that the works can proceed with minimal risk of adversely impacting GCNs and hence without the need for a GCN European Protected Species Mitigation Licence. If this is the case, a suite of non-licenced mitigation measures will need to be detailed within a method statement and implemented during the construction phase of the development to reduce the risk of adverse impacts on GCNs and other amphibians to the lowest practicable level.

Following finalisation of the development proposals, the need for a European Protected Species Licence or a non-licenced method statement can be confirmed and detailed within an Ecological Impact Assessment (EcIA) document that will need to be prepared for the proposed development.

The report should be read in conjunction with appendices 1 to 6, which give visual representations of the survey results. This report should also be read in conjunction with the following ecological survey reports which have been prepared for the site by UES:

- UES Preliminary Ecological Appraisal (report reference UES03918/02)
- UES GCN Impact Assessment (report reference UES03918/22)

1 INTRODUCTION

1.1 Author, surveyors, and qualifications

This report is compiled and written by Bethan Beeston, UES Trainee Ecologist.

Other surveyors included:

- Toby Hart BSc MCIEEM PIEMA, UES Managing Director. Toby is licensed by Natural Resources Wales to disturb, take and handle GCNs under licence number S086784/1.
- Mark Halliwell MBiol, UES Senior Ecologist. Mark is an accredited agent on the GCN licence of Toby Hart (licence number S086784/1).
- Daniel Smith BSc MScRes, UES Ecologist. Daniel is licensed by Natural Resources Wales to disturb, take and handle GCNs under licence number S093616/1.
- Jenny Gibbs, UES Administrator
- Paula Lewellyn, UES Sub-contractor

All surveyors have the knowledge, skills and experience identified within CIEEM's "Competencies for Species Survey: Great Crested Newt" (2013), or were under the supervision of a surveyor with the required competencies.

1.2 Survey objectives

UES was commissioned in May 2023 to conduct site surveys which include the following activities:

- Establish the population size of GCNs in all suitable onsite ponds
- Assess the size class of the population likely to be affected by the development
- Evaluate the potential impacts of the development on GCN and associated habitats (if present)
- Provide advice on any potential requirement for mitigation or compensation.

1.3 Proposed development

At this stage, no detailed proposals have been submitted to UES.

1.4 Structure of the report

This report sets out the methodology, results, and recommendations in relation to a specific GCN survey. Recommendations are in line with statutory legislation and planning policy objectives.

The report should be read in conjunction with appendices 1 to 6, which give visual representations of the survey results. This report should also be read in conjunction with the following ecological survey reports which have been prepared for the site by UES:

- UES Preliminary Ecological Appraisal (report reference UES03918/02)
- UES GCN Impact Assessment (report reference UES03918/22)

2 METHODOLOGY

2.1 Desk study

The following resources were used to inform the desk study:

- National – Using the UK government's MAGIC website, statutorily protected sites were scoped to a distance of 10km from the application site.

- Local – As part of the PEA undertaken of the site in November 2022, UES were commissioned to undertake a record search, through COFNOD, of protected or otherwise notable species (including all amphibian species) within 2km of the proposed development site.

2.2 Field survey

The survey methodology followed that of Natural England's GCN mitigation guidelines (2001).

Standard presence / absence surveys require four site visits, however when presence has been confirmed, a further two visits (total of six) are required to assess the size of the GCN population within a pond.

Surveys used a combination of at least three of the four recommended survey methods (bottle trapping, netting, torching and egg searching), as detailed in the following subsections. All amphibian species observed during the surveys were recorded, along with their gender and life stage, if possible.

2.2.1 Bottle trapping

Bottle traps were placed around the margins of the ponds and left overnight, before collecting them early the following morning. Where safe to do so, traps were set all around the ponds at a density of one trap per two metres of shoreline. Some studies indicate that bottle trapping is the most reliable method for detecting the presence of GCN, and it is especially useful for surveying turbid or weed-covered ponds. This method also allows the accurate identification of any amphibians caught. Bottle traps should not be used where there is a risk of disturbance by people or animals, or when the overnight air temperate drops below 5°C, or during very hot weather when water temperatures will be high and dissolved oxygen levels low.

2.2.2 Torching

GCNs can be searched for at night using a powerful torch. In clear ponds this can be a very effective way of detecting and counting newts during the breeding season, but this method can be limited in heavily vegetated or turbid ponds. It is recommended that the entire margin of the pond is walked once, slowly checking for newts. Surveys should only take place when the night air temperature is > 5°C and there is no or little wind or rain to disturb the water's surface.

2.2.3 Netting

GCNs can be captured by sampling the area around the pond edge using a long-handled net. There should be at least 15 minutes of netting per 50m of shoreline. Netting should be

undertaken with care so as to minimize damage to beds of submerged aquatic vegetation which may contain newt eggs and / or larvae.

2.2.4 Egg search

All native newts lay eggs singly on submerged leaves of aquatic plants and other suitable submerged items. Careful examination of pond vegetation can therefore be used to establish the presence of newts in a pond during the breeding season. GCN eggs can be distinguished from other newt species' eggs, therefore enabling species-specific presence / absence to be determined.

2.2.5 Environmental DNA (eDNA) testing

eDNA testing provides a GCN presence / absence result from water samples taken from a pond, following specific protocols detailed in Biggs *et al.,* 2014. These protocols have been approved by Natural England as a method to determine GCN presence or absence in a waterbody, within the newt breeding season, from 15th April to 30th June.

Using the sterile kit provided from a laboratory, 20 water samples were taken from intervals around the pond and then mixed together. From there, a 15ml sample was transferred into each of the 6 sample tubes, which contained a preserving fluid. The samples were sent to the laboratory for analysis as soon as possible. If required, samples were refrigerated until they were sent to the laboratory.

2.3 PSCA timings and weather conditions

Table 1 – GCN PSCA timings and weather conditions.

SITE VISIT N^{O}	DATE	TEMP. (°C)	CLOUD COVER (%)	WIND	RAIN
1	05/05/2023	15	20	Gentle breeze	Dry
2	08/05/2023	16	60	Still	Dry
3	11/05/2023	11	80	Gentle breeze	Light
4	14/05/2023	10	100	Gentle breeze	Light
5	17/05/2023	11	90	Gentle breeze	Dry
6	15/06/2023	21	0	Still	Dry

All surveys were undertaken during suitable weather conditions.

2.4 Survey limitations

PSCA surveys were not undertaken of Pond 2 as it was found to be dry / holding insufficient water at the time of the survey. An updated eDNA survey was undertaken of Pond 2 in May 2024, the results of which were negative, indicating an absence of GCNs. Given the lack of sufficient water to support the GCN life cycle and the negative eDNA result, it is considered that this pond is unsuitable for use by breeding GCNs and hence this is not a limitation.

No access was granted to undertake further GCN presence / absence or PSCA surveys of any offsite ponds. All suitable onsite ponds could be surveyed and the potential for an increased peak count of GCNs using the site has been considered within the evaluation and recommendations section of this report. As such, this is not considered to be a significant limitation and sufficient survey results are available to inform a robust assessment of GCN use of the site, and to determine the potential impacts on GCNs as a result of the development of the site.

3 RESULTS

3.1 Desk study

Records of GCNs were returned from within the site boundary itself. One record is from 2004 and details 13 adults within an unspecified pond. The other record dates from 2021 and details a single adult and an egg within an unspecified pond. The locations / grid references for the records do not correlate with the waterbodies on site and so it is presumed that the records are from ponds that have dried up and are no longer present, or they are lacking accuracy and could be from any of the waterbodies on site. Numerous offsite records of GCNs were also returned from all directions, the closest of which are located approximately 62m north and 162m east. A record of a common frog *Rana temporaria* was also returned from the site and records of smooth newt *Lissotriton vulgaris*, palmate newt *Lissotriton helveticus* and common toad *Bufo bufo* were returned from within 2km.

3.2 Habitat assessment

3.2.1 Terrestrial habitats

The site has an area of approximately 23ha and is generally dominated by dense scrub. Small stands of semi-improved grassland are present across the site including glades and pathways through the scrub. Other habitats present on site include hardstanding access tracks and small areas of marshy grassland, tall ruderal vegetation, bare ground, scattered broadleaved trees and ephemeral / short perennial vegetation. The southern section of the site contains stands of woodland.

Overall, the terrestrial habitats on site are broadly suitable for sheltering, foraging and commuting amphibians.

The immediate surrounding area (within 0.5km) comprises agricultural and pasture fields to the south and east, with interconnecting field boundary hedgerows, interspersed with broadleaved trees. Wrexham Industrial Estate extends to the north and west, with numerous roads and urbanised areas. The surrounding fields and hedgerows will provide some foraging and commuting opportunities for amphibians and provide connectivity to higher quality habitat further afield. The wider surrounding area (2km) is similar in composition, with arable and pasture fields containing networks of field boundary hedgerows dominating the landscape to the south and east. Wrexham and Wrexham Industrial Estate lie to the north and west.

3.2.2 Aquatic habitats

Six waterbodies and a single ditch were identified on site during detailed habitat assessments undertaken by UES. A review of the aerial photographs and Ordnance Survey maps identified an additional 18 offsite waterbodies that lie within 500m of the survey boundary. Most of these waterbodies are situated within the extended rural areas to the south and east and are well connected to the site via the field boundary hedgerows and lines of broadleaved trees surrounding the arable and pasture fields. The field parcels themselves are large and open which may act as minor barriers to amphibian movement.

Full details and descriptions of all surveyed onsite and offsite ponds, including Habitat Suitability Index (HSI) assessment results are provided within the GCN impact assessment report that has been prepared for the site, see report reference UES03918/22.

3.3 Population size class assessment

The peak adult GCN counts for each pond on site (across all survey methods) are provided in Table 2 below. Full details of the survey results are provided in Appendix 4 – Survey results.

Table 2 – Survey results for each site visit at the ponds with confirmed GCN presence.

SITE VISIT N^{O}	PEAK. ADULT GCN COUNT		
	Pond 3	Pond 3A	Pond 4
1	24	0	1
2	27	0	0
3	48	0	0
4	21	0	1
5	22	0	0
6	11	0	0

No GCNs or any other amphibians were observed within Pond 3A.

A medium population of GCNs was observed within Pond 3, with a peak count of 48 individuals. A peak count of 37 smooth newts was also observed within Pond 3. GCN eggs were observed in Pond 3, laid on water forget-me-not and willowherb and over 50 GCN efts were also observed within the pond during the final torching survey.

A single GCN was observed within Pond 4, on two separate survey visits. GCN eggs were observed in Pond 4, laid on water forget-me-not and willowherb. A peak count of nine smooth newts and a single juvenile common frog were also observed within the pond.

3.4 eDNA survey

PSCA surveys were not undertaken of Pond 2 as it was found to be dry / holding insufficient water at the time of the survey. An eDNA survey of Pond 2 in 2023 returned a positive result with 1/12 positive replicates, indicating low levels of GCN activity.

An updated eDNA survey was undertaken of Pond 2 in May 2024, the results of which were negative indicating an absence of GCNs (see Appendix 5).

4 EVALUATION AND RECOMMENDATIONS

4.1 Evaluation of results

The terrestrial habitats within the development footprint are broadly suitable for GCNs and other amphibians. The areas of woodland, scrub and semi-improved grassland provide an array of moderate to high quality opportunities for foraging and commuting amphibians. Additionally, there are potential hibernation opportunities in the exposed tree root systems, dense vegetation / leaf litter within the areas of scrub and woodland and rubble piles on site.

A summary of the survey results of all onsite waterbodies is provided below:

Table 3 – Summary of onsite GCN survey results.

Waterbody number	In use by GCN (max count)	Confirmed breeding	Comments
Pond 1	No	No	Negative eDNA results in 2023. Pond considered to dry most years and be unsuitable to support breeding.
Pond 1A	No	No	Negative eDNA in 2023.
Pond 2	No	No	Negative eDNA in 2024. Pond considered to dry most years and be unsuitable to support breeding.
Pond 3	Yes (48)	Yes	Presence of eggs confirms breeding.
Pond 3A	Yes (0 count but positive eDNA)	No	No GCN during PSCA, but low number of positive replicates (2/12) from eDNA in 2023.
Pond 4	Yes (1)	Yes	Presence of eggs confirms breeding.
Ditch 1	No	No	Unsuitable for breeding due to flowing water.

Through a combination of eDNA analysis and PSCA surveys, GCN presence has been confirmed within three of the onsite ponds: Ponds 3, 3A and 4. All other waterbodies on site are considered to be unsuitable for GCNs or their absence has been confirmed through eDNA analysis.

Whilst positive eDNA results were returned, Pond 3a is not considered to be suitable for use by breeding GCNs due to its small size and lack of sufficient egg-laying opportunities. This is evidenced through the PSCA survey results which found no GCNs to be using the pond and no evidence of GCN egg laying. It is considered that the very low number of positive eDNA replicates returned for the pond (2/12) indicates either a false positive result, or the use of the pond by a single or very low number of GCNs in a temporary capacity, likely for foraging or on an exploratory basis.

A peak count of 48 individuals was observed during the surveys and almost all GCN activity was confined to Pond 3 and to the eastern section of the site. As such, it is considered that the site supports a medium population of GCNs, and Pond 3 is a locally important feature for GCN, contributing towards the nationally important status of the GCN meta population within the wider Wrexham Industrial Estate.

No access to offsite ponds was granted to undertake further presence / absence surveys or population size class assessments. The presence of GCNs within a number of offsite ponds within 500m of the site was confirmed during previous eDNA and GCN impact assessment

surveys. GCNs using these offsite ponds for breeding may use the terrestrial habitats on site at other times of year and there may be movement between the meta population within the wider Wrexham Industrial Estate. As such, there is some potential for the actual peak count of GCN using the site to be slightly higher than the 48 observed during the PSCA surveys. Given the distance and the presence of potential barriers to movement between offsite ponds and the proposed development site, in addition to the presence of suitable terrestrial habitat within the wider landscape and surrounding all offsite ponds, it is considered highly unlikely that a significant number of additional GCNs will use the site and this number would not be enough to reach the threshold of 100 individuals needed for a large population.

4.2 Impacts

Detailed development plans have not been submitted to UES at this stage, however the proposals are likely to be limited to the construction of an industrial / commercial unit within the western section of the site. As such, all ponds with confirmed use by GCN will be retained and protected as part of the proposals. Depending on confirmation of the final development proposals and location, it is considered that the proposals may be located a sufficient distance from all known GCN breeding ponds that the works can proceed with minimal risk of adversely impacting GCNs and hence without the need for a GCN European Protected Species Mitigation Licence. If this is the case, a suite of non-licenced mitigation measures will need to be detailed within a method statement and implemented during the construction phase of the development to reduce the risk of adverse impacts on GCNs and other amphibians to the lowest practicable level.

If a European Protected Species Mitigation licence is required, a method statement will need to be submitted as part of the planning application, to detail the proposed mitigation and compensation measures that will be implemented with regards to GCNs. The licence application can then only be applied for once planning permission has been granted, but must be secured prior to the start of any works that could adversely impact GCNs or their terrestrial or aquatic habitats. Natural Resources Wales aim to process applications within 40 working days of receipt.

Following finalisation of the development proposals, the need for a European Protected Species Licence or a non-licenced method statement can be confirmed and detailed within an Ecological Impact Assessment (EcIA) document that will need to be prepared for the proposed development.

5 CONCLUSION

Through a combination of eDNA analysis and PSCA surveys, GCN presence has been confirmed within three of the onsite ponds: Ponds 3, 3A and 4. All other waterbodies on site are considered to be unsuitable for GCNs or their absence has been confirmed through eDNA analysis.

A peak count of 48 individuals was observed within the ponds on site during the surveys and almost all GCN activity was confined to Pond 3 and to the eastern section of the site.

Detailed development plans have not been submitted to UES at this stage however the proposals are likely to be limited to the construction of an industrial / commercial unit within the western section of the site. As such, all ponds with confirmed use by GCN will be retained and protected as part of the proposals. Depending on confirmation of the final development proposals and location, it is considered that the proposals may be located a sufficient distance from all known GCN ponds that the works can proceed with minimal risk of adversely impacting GCNs and hence without the need for a GCN European Protected Species Mitigation Licence.

Following finalisation of the development proposals, the need for a European Protected Species Licence or a non-licenced method statement can be confirmed and detailed within an Ecological Impact Assessment (EcIA) document that will need to be prepared for the proposed development.

6 REFERENCES

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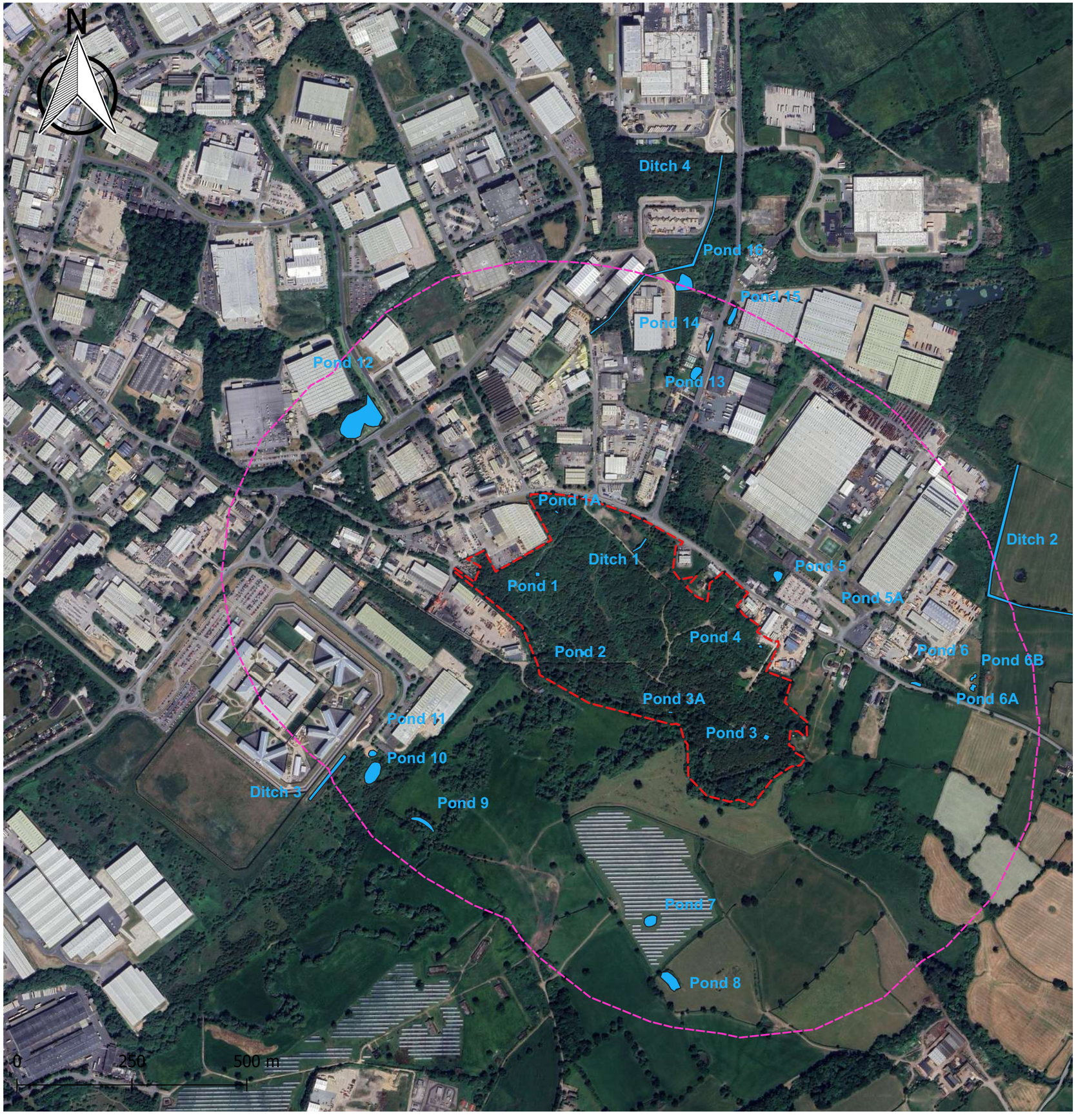
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APPENDICES

Appendix 1 – Pond plan

500m Pond Plan

Site: The Oaks, Wrexham
NGR: SJ 38699 49320
Author: Tom Kenwright
Date: 04/04/2023





KEY:

- Survey boundary
- Waterbodies
- 500m buffer zone to survey boundary

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Appendix 2 – Aerial photographs


The Oaks, Wrexham Industrial Estate
Close aerial photograph
Survey boundary
Map data © 2023 Google, Imagery © 2023 Google


The Oaks, Wrexham Industrial Estate
Wide aerial photograph
Site location
Map data © 2023 Google, Imagery © 2023 Google

Appendix 3 – Photographs



Photograph 1 – Pond 2. The pond was dry at the time of presence / absence surveys.



Photograph 2 – Pond 3.



Photograph 3 – GCN eggs within Pond 3.



Photograph 4 – Pond 3A.



Photograph 5 – Pond 4.

Appendix 4 – PSCA survey results

POND 3				Method:	Torch Torch power:			Bottle-trap No. of traps used in pond:			Net			Egg search eggs found?	Larvae larvae found? (any method)	Other species			
No. of survey visits to this pond:			6		1 Million CWP			30											
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.			Smooth newt	Palmate newt	Common toad	Common frog
(1) Date:	Air temp	Veg % cover	Turbidity (0 = low visibility, 5 = clear)		15	9	0	15	7	0	1	0	0	No	No	13 male and 5 female	0	0	0
5th - 6th May	15°C	70	4	Adult totals:	24		0	22		0	1		0	No	No				
(2) Date:	Air temp	Veg % cover	Turbidity		16	11	0	6	6	0	0	0	0	No	No	3 female and 13 male	0	0	0
8th May - 9th May	16°C	70	4	Adult totals:	27		0	12		0	0		0	No	No				
(3) Date:	Air temp	Veg % cover	Turbidity		25	23	0	10	7	1	0	0	0	Yes	Yes	18 male and 19 female	0	0	0
11th May - 12th May	11°C	70	4	Adult totals:	48		0	17		1	0		0	No	No				
(4) Date:	Air temp	Veg % cover	Turbidity		16	5	0	9	3	0	0	0	0	No	No	12 male and 3 female	0	0	0
14th May -15th May	10°C	70	4	Adult totals:	21		0	12		0	0		0	No	No				
(5) Date:	Air temp	Veg % cover	Turbidity		14	8	0	0	0	0	0	0	0	No	No	5 male and 1 female.	0	0	0
17th May- 18th May	11°C	70	4	Adult totals:	22		0	0		0	0		0	No	No				
(6) Date:	Air temp	Veg % cover	Turbidity		7	4	0	2	6	0	0	0	0	No	No	1 female	0	0	0
15th June - 16th June	21°C	70	3	Adult totals:	11		0	8		0	0		0	No	50+				
Peak adult count for this pond in any one visit (by torch, trap or net):								48											
Comments and constraints:																			

POND 3A				Method:	Torch Torch power:			Bottle-trap No. of traps used in pond:			Net			Egg search eggs found?	Larvae larvae found? (any method)	Other species			
No. of survey visits to this pond:			6		1 Million CWP			15											
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.			Smooth newt	Palmate newt	Common toad	Common frog
(1) Date:	Air temp	Veg % cover	Turbidity (0 = low visibility, 5 = clear)		0	0	0	0	0	0	0	0	0	No	No				
5th May - 6th May	15°C	100 (duckweed)	1	Adult totals:	0		0	0		0	0		0	No	No	0	0	0	0
(2) Date:	Air temp	Veg % cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No				
8th May - 9th May	16°C	100 (duckweed)	1	Adult totals:	0		0	0		0	0		0	No	No	0	0	0	0
(3) Date:	Air temp	Veg % cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No				
11th May - 12th May	11°C	100 (duckweed)	1	Adult totals:	0		0	0		0	0		0	No	No	0	0	0	0
(4) Date:	Air temp	Veg % cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No				
14th May -15th May	10°C	100 (duckweed)	1	Adult totals:	0		0	0		0	0		0	No	No	0	0	0	0
(5) Date:	Air temp	Veg % cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No				
17th May - 18th May	11°C	100 (duckweed)	1	Adult totals:	0		0	0		0	0		0	No	No	0	0	0	0
(6) Date:	Air temp	Veg % cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No				
15th June - 16th June	21°C	100 (duckweed)	1	Adult totals:	0		0	0		0	0		0	No	No	0	0	0	0
Peak adult count for this pond in any one visit (by torch, trap or net):								0											
Comments and constraints:					Cover of duckweed limited efficiency of torching. Not considered to be a significant limiation, as the pond could be subject to comprehensive netting due to it's very small size.														

POND 4				Method:	Torch Torch power:			Bottle-trap No. of traps used in pond:			Net			Egg search eggs found?	Larvae larvae found? (any method)	Other species (peak count)			
No. of survey visits to this pond:			6		1 Million CWP			20											
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.			Smooth newt	Palmate newt	Common toad	Common frog
(1) Date:	Air temp	Veg % cover	Turbidity (0 = low visibility, 5 = clear)		0	0	0	0	1	0	0	0	0	No	No				
5th May - 6th May	15°C	80%	2	Adult totals:	0		0	1		0	0		0	No	No	1 male and 2 female	0	0	0
(2) Date:	Air temp	Veg % cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No				
8th May - 9th May	16°C	90	2	Adult totals:	0		0	0		0	0		0	No	No	2 female and 5 male	0	0	0
(3) Date:	Air temp	Veg % cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No				
11th May - 12th May	11°C	80	2	Adult totals:	0		0	0		0	0		0	No	No	4 male and 5 female	0	0	1 juvenile froglet
(4) Date:	Air temp	Veg % cover	Turbidity		1	0	0	0	0	0	0	0	0	No	No				
14th May - 15th May	10°C	80	2	Adult totals:	1		0	0		0	0		0	No	No	4 male and 2 female	0	0	0
(5) Date:	Air temp	Veg % cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No				
17th May - 18th May	11°C	95	1	Adult totals:	0		0	0		0	0		0	No	No	1 female	0	0	0
(6) Date:	Air temp	Veg % cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No				
15th June - 16th June	21°C	80	1	Adult totals:	0		0	0		0	0		0	No	No	0	0	0	0
Peak adult count for this pond in any one visit (by torch, trap or net):								1											
Comments and constraints:																			

Appendix 5 – 2024 eDNA results (Pond 2)

Folio No: 621-2024
Purchase Order: UES03918.35
Contact: United Environmental Services Ltd (UES)
Issue Date: 07.05.2024

GCN Report

Technical Report

SureScreen Scientifics

Folio No: 621-2024
Purchase Order: UES03918.35
Contact: United Environmental Services Ltd (UES)
Issue Date: 07.05.2024

SureScreen Scientifics

GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus* , inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN0807	The Oaks	SJ3860949155	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Daisy Chambers

Approved by: Jennifer Higginbottom

SureScreen Scientifics

Methodology

The samples detailed above have been analyzed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample tube which then undergoes DNA extraction. The extracted sample is then analyzed using real-time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded. Analysis of eDNA requires attention to detail to prevent the risk of contamination. True positive controls, negative controls, and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added analytical security.

SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

Interpretation of Results

Sample Integrity Check: When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results. Any samples which fail this test are rejected and eliminated before analysis.

Degradation Check: **Pass/Fail**. Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

Inhibition Check: **Pass/Fail.** The presence of inhibitors within a sample is assessed using a DNA marker. If inhibition is detected, samples are purified and re-analyzed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result: **Presence of GCN eDNA (Positive/Negative/Inconclusive)**
Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.
Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with the WC1067 Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.
Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.
Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for GCN presence or absence.

Appendix 6 – Statutory and planning context

STATUTORY AND PLANNING CONTEXT

Ecological assessments

Ecological assessments play an important part within the planning context; they include an initial assessment which highlights any specific interests of a site. From the initial site assessment, the surveyor assesses the suitability of habitats within the site to support protected species and makes recommendations for further survey works if required. The following paragraphs provide a brief interpretation of the legislative protection that is relevant to the findings of this report.

Habitats

Section 7 of the Environment Act (Wales) places a duty on Welsh Ministers to publish, review and revise lists of types of habitats and species in Wales which they consider are of key significance to sustain and improve biodiversity. The Welsh Ministers must also take all reasonable steps to maintain and enhance the habitats published in these lists, and encourage others to take such steps.

Amphibians

<u>Great crested newts</u>

Great crested newts (GCN) *Triturus cristatus* and their habitat (aquatic and terrestrial) are afforded full protection by the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. If both national and international legislation are taken together, it is an offence to:

- Deliberately, intentionally or recklessly kill, injure or capture GCN
- Deliberately, intentionally or recklessly disturb GCN in such a way to be likely to significantly affect:
- their ability to survive, breed, reproduce, rear or nurture their young
- their ability to hibernate or migrate
- their local distribution or abundance
- Deliberately, intentionally or recklessly take or destroy the eggs of GCN
- Damage or destroy breeding sites or resting places of GCN
- Intentionally or recklessly disturb sheltering GCN, or obstruct access to their resting place
- Keep, transport, sell or exchange, or offer for sale or exchange any live or dead GCN, any part of GCN or anything derived from GCN

Penalties for offences include fines of up to £5000, plus up to six months imprisonment, for each offence committed.

GCN are also protected by the Protection of Animals Act 1911, which prohibits cruelty and mistreatment. Releasing a GCN in such a way as to cause undue suffering may be an offence under the Abandonment of Animals Act 1960.

In addition to the above, there are various statutory provisions relating to the transport of animals, designed to ensure their welfare. GCN are also listed under Section 7 of the Environment (Wales) Act 2016.

It is important to identify the presence of GCN individuals and also to identify suitable habitat on sites so that legal obligations regarding this species can be observed. If a survey identifies the presence of GCN on the site, an assessment of the population size class is required. This can then inform a mitigation scheme, which would need to be developed in liaison with the local Natural Resources Wales (NRW) team, and which minimises direct threats to newts and compensates for any loss of habitat. A licence issued by NRW is required for the legal implementation of a mitigation scheme.

An NRW mitigation licence application requires a Mitigation Method Statement and a Reasoned Statement of Application. The Mitigation Method Statement contains details of the proposed mitigation works. The Reasoned Statement needs to provide a rational and reasoned justification as to why the proposed development meets the requirements of the Conservation (National Habitats & c.) regulations 1994, namely Regulations 44(2)(e), (f) or (g), and 44(3)(a).

Other amphibians

More common British amphibians, such as common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Triturus vulgaris* and palmate newt *Triturus helveticus* are protected only by Section 9(5) of the Wildlife and Countryside Act 1981 (as amended). This section prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy.

The above named species are also listed as UK Species of Conservation Concern. Due to general declines in most British amphibian species in recent years, many local authorities require amphibian surveys as a planning condition, or as part of environmental information submitted as part of a planning application, even where the presence of GCN is ruled out.

Natterjack toad *Bufo calamita* and pool frog *Pelophylax lessonae* are also offered the same level of protection as GCN, through the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017.

Natterjack and common toad are also listed under Section 7 of the Environment (Wales) Act 2016.

Water bodies that support all five (more common) species of British amphibians in high numbers, may be afforded protection in local plans, as Sites of Importance for Nature Conservation (SINC), or a similar equivalent, for sites of local importance. A site may require statutory protection as a Site of Special Scientific Interest (SSSI).

Planning Policy

National planning guidance is issued in the form of Planning Policy Wales (PPW - 2018). The most relevant sections are included in Chapter 6: Distinctive and Natural Places. This chapter details the policies on issues such as the protection of trees, woodlands, species, and designated sites. The document is free and available to view online