



**GREAT CRESTED NEWT SURVEY REPORT
MAPLE ROAD, TANKERSLEY**

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1 INTRODUCTION

Surface Property (Surface) was commissioned by Company Shop and Rula Developments Ltd to undertake a survey for great crested newts (GCN) (*Triturus cristatus*) in relation to a planning application for a Distribution Centre with two-storey offices, a service yard and car parking (henceforth referred to as the Development) at Maple Road, Tankersley (henceforth referred to as the Site).

During an initial ecological appraisal¹ no waterbodies were recorded on, or within 100 m of, the Site. However, suitable terrestrial habitat of moderate potential was present on the Site and GCNs have been previously recorded in ponds to the east and west of the Site. Due to the potential loss of suitable terrestrial habitat GCN surveys were undertaken to determine the impact this may have on GCN populations in the area.

This report describes the methods and results of the GCN survey and provides an overview of the potential constraints to the Development that have been identified.

1.1 Site Description

The site occupies a small area within an Industrial Park and, as such, is bounded by a commercial unit to the east, by Maple Road and further commercial units to the south, a car parking area for a unit to the north, and an area of grassland to the west.

The Site was dominated by periodically managed semi-improved grassland with deciduous woodland to the west of the Site and areas of scattered and dense scrub.

2 LEGISLATION

Great crested newts are legally protected by the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2010 (as amended) as European Protected Species. Intentional or reckless killing, injury or taking, and intentional or reckless disturbance of GCN whilst occupying a 'place used for shelter or protection' is prohibited, as is the destruction of these places.

3 METHODS

3.1 Habitat Suitability Index (HSI) Assessment

All water bodies within the Site and 500 m of the Development (the Survey Area) were identified during walkover surveys and from OS 1:10,000 maps and aerial photographs. GCN may utilise suitable terrestrial habitat up to 500 m from their natal or breeding ponds and, therefore, if they are present in any of the ponds in the survey area or surrounds, GCN could be present within suitable terrestrial habitat within the survey area.

Nine water bodies were identified during the walkover surveys and review of maps and aerial imagery, all of which were accessible at the time of survey. A Habitat Suitability Index (HSI) assessment² was made of each to determine their potential to support GCN (Table 3.2.2 and shown on Figure 1). On the basis of this assessment, Ponds 1–6 were selected for presence/absence surveys. Ponds 7–9 were dry throughout the surveys and therefore could not be subjected to further assessment.

¹ Surface (April 2017), Ecological Appraisal

² Oldham, R. S., Keeble, J., Swan, M J. S., and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal* (10) pp. 143–155.

3.2 Presence/Absence and Population Surveys

Surveys to determine the status of GCN were undertaken in accordance with guidance³ and under licence from Natural England, as well as adhering to ARG-UK guidance on minimising the risk of spreading disease (particularly Chytridiomycosis) among amphibian populations. Six surveys were undertaken (Table 3.2.1) to help accurately estimate the local population size; this is required should a Natural England licence be necessary to facilitate development.

Table 3.2.1: Great crested newt survey dates and weather conditions.

Visit	Date	Weather Conditions
1	27/28 April 2017	Ground conditions: damp Wind: fresh NE Cloud cover: 7/8 Oktas Precipitation: light periodically Temp range: 9–5°C
2	4/5 May 2017	Ground conditions: dry Wind: light S Cloud cover: 1/2 Oktas Precipitation: none Temp range: 16–9°C
3	9/10 May 2017	Ground conditions: dry Wind: none Cloud cover: 0/1 Oktas Precipitation: none Temp range: 10–5°C
4	16/17 May 2017	Ground conditions: damp Wind: none Cloud cover: 8 Oktas Precipitation: none Temp range: 13–18°C
5	22/23 May 2017	Ground conditions: damp Wind: none Cloud cover: 3 Oktas Precipitation: none Temp range: 12–19°C
6	08/09 June 2017	Ground conditions: dry then damp Wind: light to fresh Cloud cover: 3 Oktas Precipitation: light shower in late evening Temp range: 12–15°C

³ English Nature (2001) *Great crested newt mitigation guidelines*. Peterborough: English Nature.

All ponds were visited four times to establish GCN presence/absence, with a further two visits completed if GCN were present in a water body. All six visits were carried out between mid-April and June 2017, with three visits completed during the optimum mid-April to mid-May period.

Three of the four approved surveying techniques were adopted, i.e. torching, bottle trapping, netting and egg searching in accordance with Natural England guidance, during each survey visit.

- *Torchlight survey* – The perimeter of each pond was walked after dark whilst illuminating the water's edge with a powerful torch. This method is only used when visibility in the water column is not impaired by rain, wind, turbidity or vegetation. Note that distinguishing between female smooth and palmate newts under torchlight is extremely difficult and so females of these species are classified as 'unidentified small female' during these surveys.
- *Bottle trapping* – Bottle traps constructed from two-litre plastic bottles were set around the perimeter of each water body shortly before dusk. The bottle traps were revisited early the next morning to record any newts captured and ensure their safe release. This method is especially useful where visibility is poor, for example in heavily vegetated or turbid water.
- *Netting* – The perimeter of the pond was sampled with a long-handled dip net with care taken not to disturb the macrophyte community.
- *Egg searching* – The vegetation within each pond was inspected for the presence of eggs. Once eggs are found (and breeding therefore confirmed), no further searches are conducted.

The physical condition of the ponds (depth, size, turbidity, vegetation, access *etc.*), determined which survey methods were appropriate. Health and Safety issues were also considered when selecting the survey methods. A combination of torch survey, egg searching and bottle trapping were used for the six ponds. Further justification for the choice of survey methods selected is presented in Table 3.2.2 along with more information about the pond habitats.

Table 3.2.2: Pond descriptions.

Pond no.	Grid reference	HSI Score	Description	Survey methods
1	SK 32945 99628	0.86 'excellent'	Large pond dominated by reedbed with central grassed island. Waterfowl prevalent and water often turbid, except near perimeter.	Suitable for bottle trapping, torch surveys and egg searching. Slightly turbid, but shallows easily torched. Marginal vegetation prevented access to all parts of water's edge.
2	SK 33094 99423	0.76 'good'	Northernmost of three, once interconnected, ponds. Pond water level frequently changed. Some aquatic invertebrates noted.	Suitable for torch surveys, bottle trapping and egg searches. Bottle trapping limited to deeper areas during dry spells.
3	SK 33122 99420	0.81 'good'	Middle of the three, once interconnected, ponds. Water levels stable, emergent vegetation dominated by bulrush.	Suitable for bottle trapping, torch surveys and egg searching. Slightly turbid, but shallows easily torched. Marginal vegetation prevented access to all parts of water's edge.

4	SK 33138 99389	0.93 'excellent'	Southernmost of the three, once interconnected, ponds. Kidney shaped pond with bulrush and slight turbidity.	Suitable for bottle trapping, torch surveys and egg searching. Slightly turbid, but shallows easily torched. Marginal vegetation prevented access to all parts of water's edge.
5	SK 33638 99377	0.87 'excellent'	Large manufactured pond to the east of the Site. Extensive bulrush and duckweed coverage which has increased turbidity of pond. Clear waterfowl presence.	Suitable for bottle trapping, torch surveys and egg searching. Duckweed impacted visibility at some of the pond edges. Two-thirds of the water's edge was inaccessible due to construction from sheet metal and depth of water. Reedbed habitat within the pond made it unsuitable for wading access due to unknown water depth.
6	SK 33599 99431	0.56 'below average'	Small pond surrounded by trees, highly shaded with very limited emergent vegetation.	Suitable for bottle trapping, torch surveys. Egg searching was limited due to lack of suitable emergent vegetation, what little vegetation present was searched.
7	SK 33771 99559	0.34 'poor'	Shallow pond dominated by reedbed and colonised by grass species.	Dry during all surveys, no methods completed.
8	SK 33804 99586	0.34 'poor'	Shallow pond dominated by reedbed and colonised by grass species.	Dry during all surveys, no methods completed.
9	SK 33826 99607	0.34 'poor'	Balancing pond, dry at the time of survey. Steep banks and clay lined.	Dry during all surveys, no methods completed.

3.3 Population Size Class

The maximum adult count recorded from a water body on a single night using a single survey technique is used to estimate the population size class as Small (<10 individuals), Medium (11–100 individuals) or Large (>100 individuals). The populations of waterbodies within 250 m of each other can be considered together to form an effective meta-population if there are no significant barriers to dispersal and migration among the waterbodies⁴.

3.4 Artificial Refugia

Artificial refugia were placed within the Site and inspected seven times as part of a dedicated reptile survey. This survey was not undertaken specifically to determine the presence of GCN but since the species is known to rest under refugia, inspecting such refugia provided an additional and accepted method of surveying GCN because the presence of refugia may increase the chance of recording GCN in terrestrial habitat on a site³. The inspections were undertaken during May and June, which are considered to be two of the most effective months to find GCN using refuges³.

⁴ JNCC (2003) *Herpetofauna Workers' Manual*. Peterborough: JNCC.

4 LIMITATIONS

Due to a potential health and safety risk at Pond 5 which could not be mitigated, the water body could only be trapped along its western and northern edges. The level of reedbed cover, depth and lack of water clarity meant that wading further into the pond to place traps was not safe.

After the fourth survey visit a dead water shrew (*Neomys fodiens*) was recorded in Pond 5 by an ecologist working for Barnsley Metropolitan Borough Council (BMBC). The water shrew is an IUCN species of concern and it is considered good practice to cease bottle trapping if it is considered to be a threat to the species. For this reason, Ponds 5 and 6 (due to its close proximity to Pond 5) were not trapped during survey visits 5 and 6. Torching had previously recorded the peak count during each survey visit for both Pond 5 and 6, therefore a reduction in trapping visits was not considered to affect peak counts gained during the surveys. Therefore, the cessation of bottle trapping is not a limitation to the overall survey and conclusions.

5 RESULTS

5.1 Habitat Suitability Index (HSI) Assessment

The results of the HSI are shown in Table 3.2.2. The three dry ponds (Ponds 7–9) were assessed to be of poor or below average suitability to support GCN. The remaining ponds had above average or excellent suitability to support GCN.

5.2 Presence/Absence and Population Surveys

The results of the presence/absence and population surveys for each pond are presented separately in Table 5.2 below. GCN and any other amphibian species were recorded.

Table 5.2. Survey Results

Visit Number: 1	Survey Method			Peak GCN ⁵
Pond	Torching	Bottle Traps	Egg Search	
1	2 mGCN*, 2 fGCN, 1 uCF	1 mGCN, 2 fGCN	Egg recorded	4
2	7 mGCN, 14 fGCN, 2 mSN, 7 USF, 1 uCF	21 mGCN, 8 fGCN	None recorded	29
3	7 mGCN, 4 fGCN	9 mGCN, 5 fGCN	Egg recorded	14
4	15 mGCN, 16 fGCN, 3 mSN	32 mGCN, 9 fGCN, 1 uCF	None recorded	41
5	0	4 mGCN, 1 fGCN, 1 uCF	None recorded	5
6	2 mGCN, 4 fGCN	1 mGCN, 4 fGCN	None recorded	6
Visit Number: 2	Survey Method			Peak GCN
Pond	Torching	Bottle Traps	Egg Search	
1	1 uCF	3 mGCN, 1 fGCN, 1 uCF	No egg search as egg recorded	4
2	10 mGCN, 3 fGCN, 1 uCF, 5 USF	2 mGCN, 3 fGCN, 1 fSN	None recorded	13
3	15 mGCN, 14 fGCN, 1 mSN, 1 USF	5 mGCN, 2 fGCN	No egg search as egg recorded	29
4	32 mGCN, 34 fGCN, 6 mSN, 6 USF	18 mGCN, 6 fGCN, 2 fSN	Egg recorded	66
5	0	1 mSN	None recorded	0
6	2 mGCN, 3 fGCN	1 mGCN, 3 fGCN	None recorded	5

⁵ Peak count is highest number recorded over all survey methods.

Visit Number: 3	Survey Method			Peak GCN
Pond	Torching	Bottle Traps	Egg Search	
1	1 fGCN	2 fGCN, 1 uCF	No egg search as egg recorded.	2
2	18 mGCN, 10 fGCN, 2 mSN, 1 USF	6 mGCN, 7 fGCN, 1 mSN, 3 fSN	Egg recorded	28
3	7 mGCN, 2 fGCN, 1 USF	7 mGCN, 7 fGCN, 1 mSN, 1 fSN	No egg search as egg recorded	14
4	23 mGCN, 26 fGCN, 4 USF	8 mGCN, 7 fGCN	No egg search as egg recorded	49
5	1 fGCN	1 mGCN, 1 fGCN	None recorded	2
6	1 USF	1 fGCN	None recorded	1
Visit Number: 4	Survey Method			Peak GCN
Pond	Torching	Bottle Traps	Egg Search	
1	2 mGCN, 1 USF	9 mGCN, 4 fGCN	No egg search as egg recorded	13
2	9 mGCN, 14 fGCN, 5 mSN, 9 USF	11 mGCN, 8 fGCN, 3 mSN, 4 fSN	No egg search as egg recorded	23
3	22 mGCN, 20 fGCN, 2 mSN, 8 USF	12 mGCN, 7 fGCN, 1 mSN, 1 fSN	No egg search as egg recorded	42
4	47 mGCN, 25 fGCN, 1 mSN, 1 USF	27 mGCN, 11 fGCN, 1 fSN	No egg search as egg recorded	72
5	0	0	None recorded	0
6	6 mGCN, 1 fGCN	8 mGCN, 3 fGCN	None recorded	11

Visit Number: 5	Survey Method			Peak GCN
Pond	Torching	Bottle Traps	Egg Search	
1	4 mGCN, 5 fGCN, 1 mSN, 2 USF	1 mGCN, 3 fGCN	No egg search as egg recorded	9
2	6 mGCN, 2 mSN	2 mGCN, 4 fGCN	No egg search as egg recorded	6
3	11 mGCN, 16 fGCN, 1 USF	1 mGCN, 3 fGCN, 1 mSN	No egg search as egg recorded	27
4	20 m GCN, 13 fGCN	6 mGCN, 9 fGCN	No egg search as egg recorded	33
5	1 mGCN	Not trapped	None recorded	1
6	2 mGCN, 10 fGCN, 4 mSN, 4 USF	Not trapped	None recorded	12
Visit Number: 6	Survey Method			Peak GCN
Pond	Torching	Bottle Traps	Egg Search	
1	2 mGCN, 1 fGCN, 2 mSN	1 fGCN, 1 mSN, 1 fSN	No egg search as egg recorded	3
2	12 mGCN, 8 fGCN, 3 mSN, 6 USF	1 mGCN, 2 fGCN, 1 mSN	No egg search as egg recorded	20
3	3 mGCN, 1fGCN, 1 USF	0	No egg search as egg recorded	4
4	16 mGCN, 12 fGCN, 1 mSN	0	No egg search as egg recorded	28
5	0	Not trapped	None recorded	0
6	5 mGCN, 7 fGCN, 2 USF	Not trapped	None recorded	12

*Key: GCN – Great crest newt m – Male
SN – Smooth newt f – Female
CF – Common frog U – Unknown
CT – Common toad USF – Unidentified small female

The results confirm the presence of GCN in all six waterbodies located in the Survey Area.

5.3 Population Size Class

The peak survey count and population class estimate is shown in Table 5.3.

Table 5.3: Peak Count and Population Class

Pond	Peak Count	Population Class
1	13	Medium
2	29	Medium
3	42	Medium
4	72	Medium
5	5	Low
6	12	Medium

Except for Pond 5, which had a low population, all waterbodies had a medium population. However, Ponds 1–4 are within 250 m of each other and so there is reasonable certainty that there will be a regular interchange of newts between the ponds². Therefore, the peak numbers obtained on any one visit for Ponds 1–4 can be summed to give a metapopulation estimate of 140 GCN, which is a large population. Ponds 5 and 6 are within 50 m of each other and are therefore considered to be a medium metapopulation.

5.4 Artificial Refugia

No GCN or other amphibians were recorded during the inspections of the refugia on the Site³.

APPENDIX A – Figure

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- Site Boundary
- Dry Pond
- Pond



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Pond Locations
Figure 1

Great Crested Newt Survey Report
Maple Road, Tankersley