



**ENVIRONMENTAL STATEMENT**  
**VOLUME 2**  
**APPENDIX 9.7 – GREAT CRESTED NEWT**  
**SURVEY REPORT**



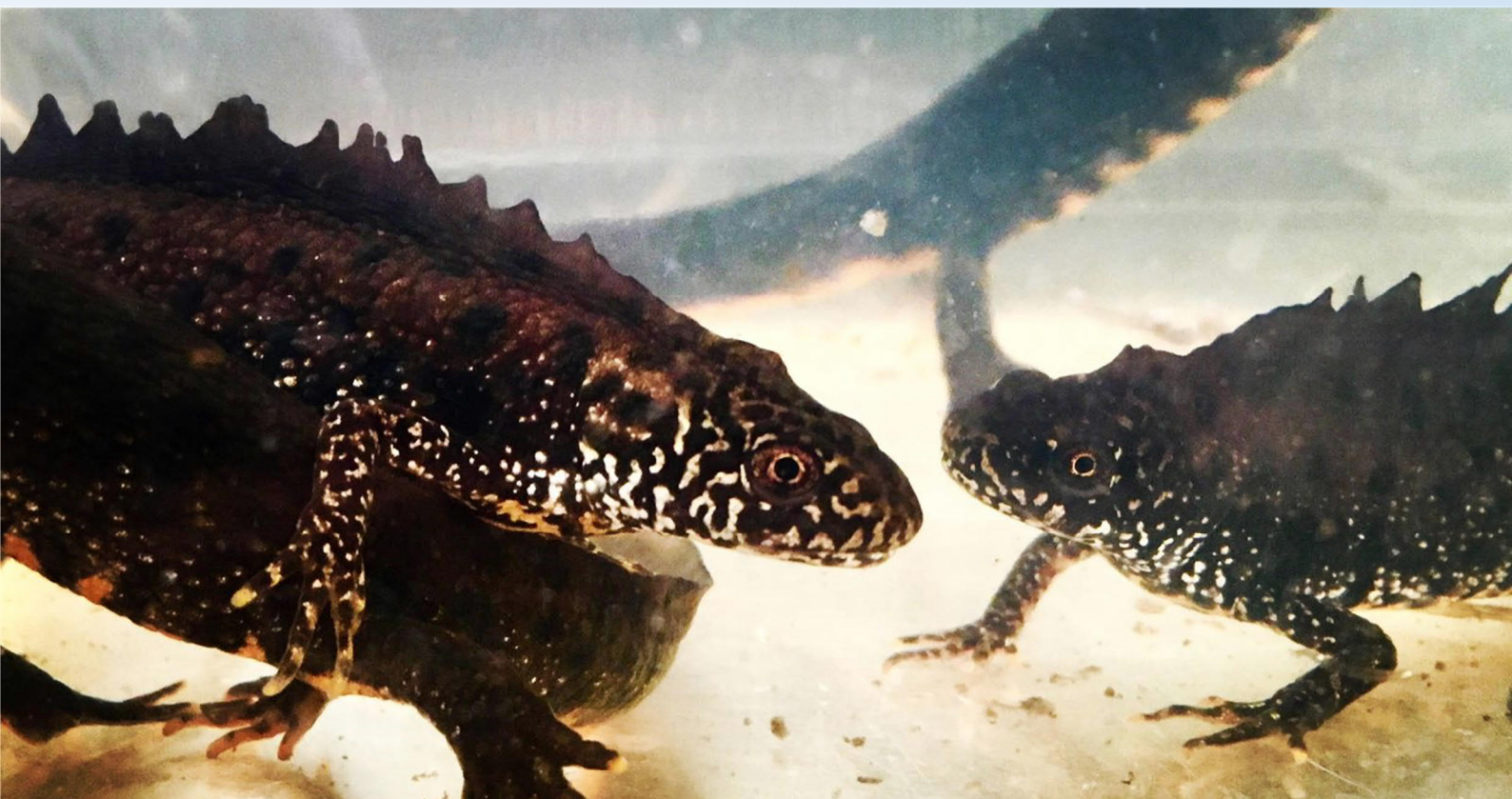


Great Wolf Resorts

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# BICESTER GOLF COURSE

Great Crested Newt Survey Report





Great Wolf Resorts

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# **BICESTER GOLF COURSE**

Great Crested Newt Survey Report

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Great Wolf Resorts

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## **BICESTER GOLF COURSE**

### Great Crested Newt Survey Report

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# EXECUTIVE SUMMARY

WSP were commissioned by Great Wolf Resorts (GWR) to undertake a suite of ecological surveys to support proposals to develop land to the north-west of Bicester Golf Course. This development will hereafter be referred to as the 'Proposed Development'. The Proposed Development comprises the construction of a resort hotel with access to be taken from A4095, which runs along the northern boundary of Bicester golf course.

This report presents the methods and results of great crested newt (GCN) *Triturus cristatus* surveys that took place within the Survey Area, which comprised of all the waterbodies within Bicester Golf and Spa Golf Course. Habitat Suitability Index (HSI) assessment and subsequent presence/absence surveys were conducted between April and June 2018 on the 18 ponds within the Survey Area.

The HSI indicated that one pond scored excellent, four ponds scored good, three scored average and four scored below average and five scored poor. Only one pond did not have a HSI completed as it was dry at the time of all the surveys. All ponds, except SW4, were subject to presence/absence surveys utilising egg searches, bottle trapping, netting and torching. From this, 15 out of 18 ponds had recorded GCN breeding activity. Further survey was carried out to determine the population size class in ponds with confirmed presence of GCN. This identified: three ponds supporting large population; eight ponds supporting a medium population and three ponds supporting a small population of GCN. A population size class could not be determined for two ponds where GCN eggs were identified but no adult GCN were found.

Populations of common toad *Bufo bufo*, common frog *Rana temporaria* and smooth newt *Lissotriton vulgaris* were also identified.

GCN are protected under the Conservation of Habitats and Species Regulations 2017 and Wildlife and Countryside Act 1981 (as amended). Other widespread amphibian species do not receive specific legal protection, although common toad is a Species of Principle Importance as listed under Section 42 of the Natural Environment and Rural Communities Act 2006.

# 1. INTRODUCTION

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## 1.1. PROJECT BACKGROUND

1.1.1. Great Wolf Resorts (GWR) are planning a redevelopment of land to the north-west of the Bicester Golf Hotel and Spa off the A4095. The redevelopment of land at Bicester Health Club is understood to include:

- the creation of a 500-bed all-inclusive resort hotel, with an indoor pool and leisure complex, targeted at families and golf enthusiasts; and
- the creation of an access road to be taken from A4095 road.

1.1.2. This scheme will hereafter be referred to as the 'Proposed Development'.

## 1.2. ECOLOGICAL BACKGROUND

1.2.1. A 'Survey Area' was defined comprising the golf course and associated buildings, see Figure 1. The Survey Area is approximately 52ha in area and located at GR SP551214.

1.2.2. Habitats within the Survey Area are predominantly managed grassland, plantation woodland, hedgerow and scrub with intermittent ponds. Land use surrounding the Survey Area is mixed with the village of Chesterton to the east, Bignell Park Farm to the north and predominantly arable land to the west and south. The M40 runs along the west boundary of the Survey Area. Land to the east of the Survey Area is currently under development.

1.2.3. During the Phase 1 habitat survey, a total of 18 waterbodies were identified within the Survey Area. These were observed to have good water quality, marginal and emergent vegetation and did not appear to be stocked with fish, making them suitable for breeding amphibian species. There is also scrub, hedgerow and woodland surrounding the waterbodies providing suitable habitat during terrestrial phases of the amphibian lifecycle through the provision of sheltering and foraging opportunities.

1.2.4. Records provided by Thames Valley Ecological Records centre (TVERC) did not identify any records for Great Crested Newts (GCN) *Triturus cristatus* within 2km of the Survey Area. However, planning application documents for nearby a development (14/01737/OUT) revealed large populations of GCN within the waterbodies in the east of the Survey Area. These populations were identified through presence/absence and population class estimate surveys on waterbodies SW14, SW16 and SW17, carried out in 2014.

1.2.5. GCN are protected under the Conservation of Habitats and Species Regulations 2017 and Wildlife and Countryside Act 1981 (as amended), denoting that it is an offence to:

- deliberately capture, injure or kill a wild great crested newt;
- deliberately disturb wild great crested newts; and
- damage or destroy a breeding site or resting place used by this species.

1.2.6. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes. Other widespread amphibian species do not receive specific legal protection, although common toad is a Species of Principle Importance as listed under Section 42 of the Natural Environment and Rural Communities Act 2006.



### **1.3. BRIEF AND OBJECTIVES**

1.3.1. GWR commissioned WSP UK Ltd to:

- complete a Habitat Suitability Index (HSI) assessment of water bodies on the Survey Area and within 500m of the Site boundary to assess their suitability as aquatic habitat for GCN and determine if further survey was required;
- complete a GCN survey to determine the presence or likely absence of this species from water bodies within the Survey Area;
- complete two additional survey visits to water bodies, where GCN were found to be present, to determine the GCN population size class; and
- where present, evaluate the value of the Site for GCN and make recommendations as to how proposals should account for GCN in relation to relevant legislation and planning policy.

1.3.2. The results of this survey are included within this report.

## 2. METHODS

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### 2.1. HABITAT SUITABILITY INDEX (HSI) ASSESSMENT

- 2.1.1. All water bodies within the Survey Area to which access was possible, were assessed for their suitability to support GCN, using the standard HSI assessment method (ARG UK, 2010, based on Oldham et al. (2000)).
- 2.1.2. Water bodies were assessed and scored on ten key variables which are known to influence breeding populations of GCN, in accordance with standard methods (ARG UK, 2010). These variables are:
- geographic location;
  - water body area;
  - water body permanence;
  - water quality;
  - water body shading;
  - impact of waterfowl;
  - fish stocks;
  - number of water bodies within 1km;
  - terrestrial habitat around the water body; and
  - macrophyte cover of the water body.
- 2.1.3. Scores for each of the above variables were used to calculate an overall HSI value for each water body. This was then cross referenced with the guidelines (ARG, 2010) to assign the pond to one of five categories, poor, below average, average, good or excellent. Index calculation is not a failsafe method of identifying whether a water body supports GCN or not; therefore, professional judgement and availability of records of GCN in the locality has also been used to inform the requirement for further survey.

### 2.2. PRESENCE / LIKELY ABSENCE SURVEY

- 2.2.1. All water bodies that were accessible and found to be suitable for GCN were subject to further survey to determine the presence or likely absence of this species.
- 2.2.2. The survey comprised four visits to each water body, spread across the recommended survey period (mid-March to mid-June, with at least two of the visits falling between mid-April and mid-May). Survey visits were completed under suitable weather conditions, when overnight temperatures were above 5°C and wind and rain were not sufficient to affect the torchlight survey results (through disturbance to the water surface).
- 2.2.3. Until presence was confirmed, three survey techniques were used, where possible, during each survey visit to search for the presence of GCN in line with good practice (English Nature, 2001). The techniques used are listed below.
- Torchlight searching – each water body was searched systematically for amphibians after dark using a bright torch; all amphibians observed were recorded, with the number of male, female and juvenile newts of each species noted. The duration of the torchlight survey was determined by the time taken to walk slowly around the water body perimeter.

- Bottle-trapping – each water body was trapped using bottle traps constructed and set in accordance with standard guidance (JNCC, 1998). Traps were set at a ratio of one for every 2m of water body perimeter with a maximum of 50 per water body. The traps were set prior to dusk, and checked and removed the following morning.
- Egg searching – suitable vegetation in each water body was searched for newt eggs which are laid on submerged or floating leaves and folded around the egg. The duration of the egg search equated to the amount of time required to search thoroughly all vegetation present<sup>1</sup>.
- Netting – a net was used to sample each water body at regular intervals (every 2m) around the water body perimeter.

## 2.3. POPULATION SIZE CLASS ASSESSMENT

- 2.3.1. A further two survey visits were completed to water bodies where GCN were found to be present to enable an assessment of the population size class present. At least one survey technique was used during each survey visit to search for, and count the number of GCN present.
- 2.3.2. The resultant peak adult counts of GCN were then cross referenced with standard guidelines to establish the population size class (English Nature, 2001). The population size class categories within the guidelines are given below for information:
- Small – maximum peak adult counts<sup>2</sup> of up to ten;
  - Medium – maximum peak adult counts of between 11 and 100; and
  - Large – maximum peak adult counts over 100.

## 2.4. DATES OF SURVEY AND PERSONNEL

- 2.4.1. The date for each survey visit is displayed in Table 1 beneath.

**Table 1 - Survey Dates and Personnel**

	HSI	Survey Visit					
		1	2	3	4	5	6
<b>Date</b>	13/06/2018	24/04/2016 – 26/04/2018	30/04/2018 – 02/05/2018	08/05/2018 – 10/05/2018	29/05/2018 – 31/05/2018	05/06/2018 – 07/06/2018	11/06/2018 – 13/06/2018

- 2.4.2. This project had three different lead surveyors, all holding Natural England survey licences for GCN. For visits 1 – 3, the lead surveyor (2015-17656-CLS-CLS) had 12 years' experience in conducting GCN surveys. For visits 4 – 6, the lead surveyor (2018-33615-CLS-CLS) had 2 years' experience and the lead surveyor (2018-34794-CLS-CLS) for visit 6 for ponds SW14, SW15, SW16a/b and SW17 is experienced in conducting GCN surveys.

<sup>1</sup> Once a great crested newt egg had been recorded, no egg searching occurred on subsequent visits to avoid unnecessary uncovering of eggs which would then be at an increased risk of predation.

<sup>2</sup> Peak counts, as counted at a water body, on one night, through torch survey or bottle trapping.

## 2.5. EVALUATION

- 2.5.1. The Site was evaluated for GCN using the CIEEM guidance (CIEEM, 2016). This guidance recommends that evaluation of site importance is made with reference to a geographical framework, e.g. a site is of local, regional, national value etc. To inform the assessment in this report the population size class assessment (and peak counts of adults) were considered in the context of the distribution and abundance of this species locally and nationally, the quality of aquatic and terrestrial habitat present, and the abundance of this species on other sites.

## 2.6. NOTES AND LIMITATIONS

- 2.6.1. Industry standard guidance suggests that GCN surveys should generally consider all waterbodies within 500m of a development site. In this instance, review of Ordnance Survey mapping indicates that the only one waterbody lies within 500m outside of the Survey Area. This waterbody is 400m north of the Survey Area and is isolated by the A4095. Given that most adult GCN will stay within 250m of the breeding pond (Langton et al, 2001), it is unlikely that this water body will be affected by works on the Proposed Development and therefore not considered to be a limitation to this survey.
- 2.6.2. SW1 is a 'wild swimming' pool still under construction, it is located on the west side of the golf course. It was considered too dangerous to use any survey techniques apart from torching. This was due to steep sides impeding access to the water's edge. Given that GCN activity was still recorded, it is unlikely that the limited survey techniques will have impacted the results of the survey.
- 2.6.3. SW4 was nearly dry during the first visit. Subsequent visits to this waterbody found it to be dry and therefore not surveyed again.
- 2.6.4. On the first visit to the site SW16 was found to be separated by a dam and therefore was categorised into separate ponds; SW16a and SW16b

### 3. RESULTS AND EVALUATION

#### 3.1. OVERVIEW

- 3.1.1. The habitat suitability survey indicated that one pond scored excellent, four ponds scored good, three scored average and four scored below average suggesting that they provide suitable habitat for GCN. Five of the ponds were considered to contain poor habitat for GCN. One pond, SW4, did not have a HSI completed as it was dry at the time of all the surveys.
- 3.1.2. GCN were identified in all waterbodies, except SW4 and SW13, Figure 3. Peak adult count indicates that there are three large, eight medium and four small populations of GCN. Considering the proximity of all the ponds, it is highly likely for movement between ponds to be occurring and therefore they should be considered as a large metapopulation.
- 3.1.3. Smooth newts *Lissotriton vulgaris* were identified in all ponds except SW4, SW11 and SW13. Males, females and eggs were recorded in all these ponds indicating confirmed breeding.
- 3.1.4. Common frog *Rana temporaria* and common toad *Bufo bufo* were also identified in ponds SW1, SW9, SW10, SW11, SW13, SW14 and SW16.

#### 3.2. HABITAT SUITABILITY INDEX (HSI) ASSESSMENT

- 3.2.1. A summary of the HSI results and location information for the water bodies is included in Table 2. Water body numbers correspond to those in Figure 2, with photographs of each water body in Appendix A. The HSI calculation is included in Appendix B.

**Table 2 - Summary of HSI Results**

Waterbody Ref.	Grid Reference	Proximity to Development Site	HSI Score	HSI Category
1	SP5479721473	180m	0.80	Excellent
2	SP5477521817	30m	0.58	Below Average
3	SP5486121444	340m	0.69	Average
4	SP5475021929	150m		Not calculated
5	SP5488921908	125m	0.56	Below Average
6	SP5480821896	100m	0.77	Good
7	SP5485821841	30m	0.76	Good
8	SP5487121815	<10m	0.56	Below Average

Waterbody Ref.	Grid Reference	Proximity to Development Site	HSI Score	HSI Category
9	SP5489221785	<10m	0.53	Below Average
10	SP5500921703	On site	0.66	Average
11	SP5515621641	On site	0.34	Poor
12	SP5522521698	On site	0.64	Average
13	SP5511421549	10m	0.32	Poor
14	SP5525621489	120m	0.75	Good
15	SP5536921460	180m	0.72	Good
16a	SP5541021262	380m	0.32	Poor
16b	SP5538921223	400m	0.29	Poor
17	SP5564021578	430m	0.45	Poor

### 3.3. PRESENCE / LIKELY ABSENCE SURVEY AND POPULATION SIZE CLASS ASSESSMENT

- 3.3.1. SW1-17 were subject to further survey to determine the presence/ likely absence of GCN. GCN were found to be present in all waterbodies except SW4 and SW13. The results of the GCN presence / likely absence and population size class surveys are summarised in Table 3 overleaf.



**Table 3 - Summary of Presence / Likely Absence Survey Results**

<b>Waterbody Ref.</b>	<b>Adult GCN Peak Count</b>	<b>GCN Breeding Activity Recorded</b>	<b>GCN Population Size Class</b>	<b>Incidental Species Recorded</b>
1	56	Yes	Medium	Common frog, Smooth newt
2	107	Yes	Large	Smooth newt
3	1	Yes	Small	Smooth newt
4	0	No	n/a	n/a
5	107	Yes	Large	Smooth newt, Common toad
6	16	Yes	Medium	Smooth newt
7	92	Yes	Medium	Smooth newt
8	21	Yes	Medium	Smooth newt
9	37	Yes	Medium	Smooth newt, Common toad
10	8	Yes	Small	Smooth newt, Common toad, Common frog
11	0	Eggs only	n/a	Smooth newt, Common toad
12	17	Yes	Medium	Smooth newt
13	0	No	n/a	Common toad
14	22	Yes	Medium	Smooth newt, Common frog
15	105	Yes	Large	Smooth newt, Common toad
16a	0	Eggs only	n/a	Smooth newt, Common toad, Common frog
16b	1	No	Small	Smooth newt, Common toad, Common frog
17	44	Yes	Medium	Smooth newt

- 3.3.2. All surveys were completed under appropriate conditions, with overnight minimum temperatures ranging between 4°C and 14°C and pond conditions suitable for methods used to be effective. Full details of weather and pond conditions on each survey visit are included in Appendix C.
- 3.3.3. Given the proximity and the corridors of good terrestrial habitat between ponds, it is considered that the Survey Area supports a large breeding metapopulation of GCN. A metapopulation is a group of associated populations. In terms of GCN, a metapopulation is made up from newts which breed in, and live around, a cluster of ponds. There will be some interchange of newts between ponds, even though most adults consistently return to the same pond to breed (Langton et al, 2001).

### **3.4. EVALUATION OF THE SITE FOR GREAT CRESTED NEWTS**

- 3.4.1. GCN is found widely throughout northern Europe. Populations have declined dramatically throughout the species' European range and are threatened in several countries. Despite this, the species is widespread throughout lowland England and Wales, but occurs only sparsely in south-west England, mid Wales and Scotland. Insufficient data is available to make a precise population estimate for the UK, but according to the 2007 Countryside Survey, it is likely that that the GCN population is continuing to decline (Carey et al, 2008). GCN are considered common within Oxfordshire, but the exact population of the species in the county is unknown. GCN are anecdotally known to be widespread in the Bicester Area.
- 3.4.2. The Survey Area does support a significant population GCN and is therefore likely to be of importance at up to a district level (Cherwell District).

## 4. CONCLUSIONS

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- 4.1.1. GCN were found to be present in all waterbodies except SW4 and SW13. Within the Survey Area, three ponds, SW11 and SW10 support breeding populations of GCN. Overall the Survey Area is considered to support a large breeding metapopulation of GCN.

## 5. REFERENCES

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### 5.1. TECHNICAL REFERENCES

- Amphibian and Reptile Groups of the United Kingdom (2010). ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. ARG UK, UK
- CIEEM (2016). Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland, Terrestrial, Freshwater and Coastal.
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- Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001). Great Crested Newt Conservation Handbook, Froglife, Halesworth.
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## 6. FIGURES

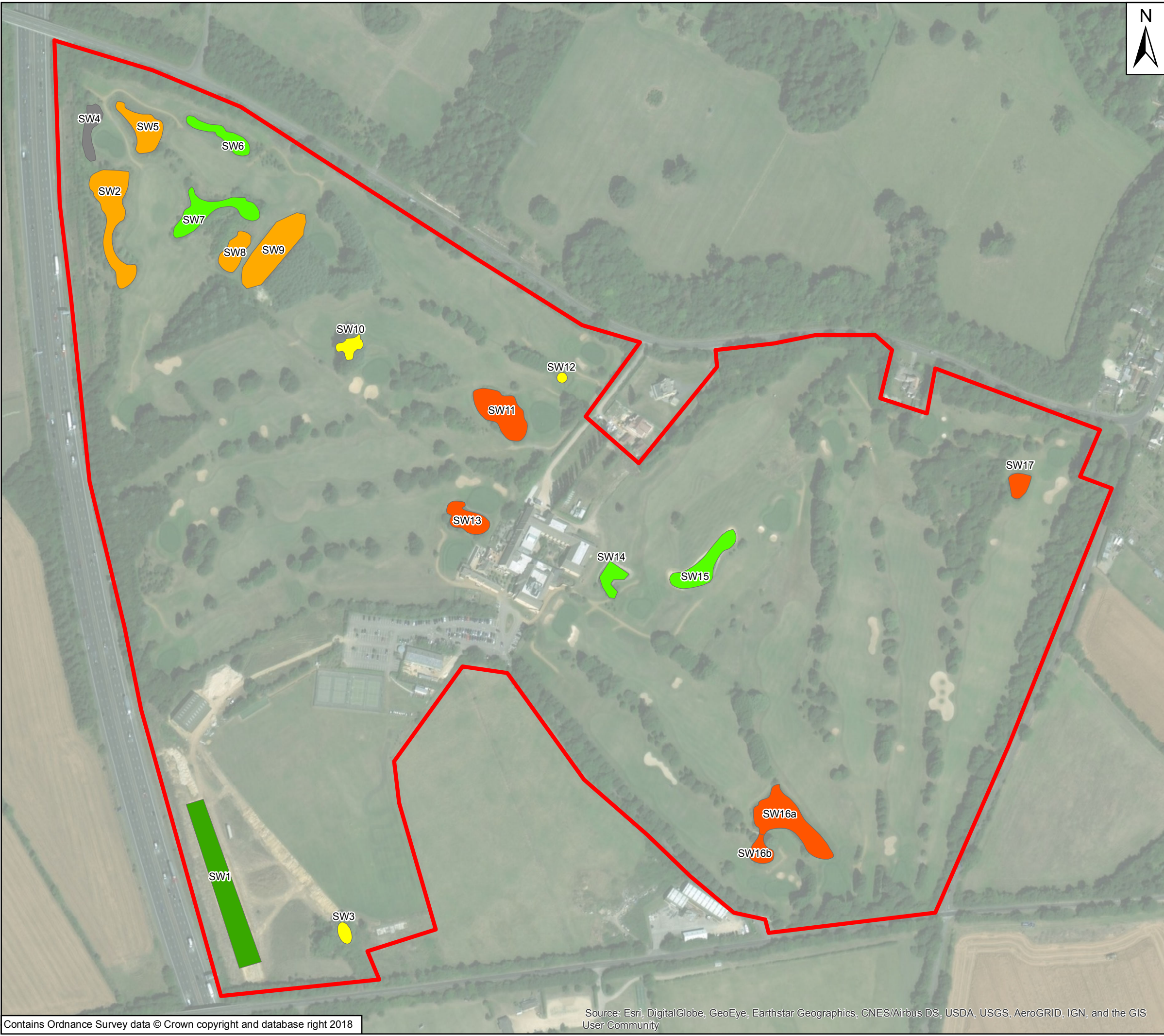
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Figure 1 - Site Location Plan

Figure 2 - Survey Results: HSI Survey

Figure 3 - Survey Results: Presence / Likely Absence and Population Size Class

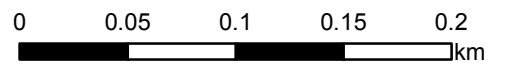




**Key**

- Survey Area
- Excellent
- Good
- Average
- Below Average
- Poor
- Dry

**Waterbodies HSI score**



<b>Client:</b>	Great Wolf Resorts
<b>Project:</b>	Bicester
<b>Title:</b>	Survey Results: HSI Survey

<b>Drawing No:</b> Figure 2	<b>Drawn:</b> RD
<b>Date:</b> January 2019	<b>Checked:</b> LR
<b>Scale:</b> 3,500 @ A3	<b>Approved:</b> AH

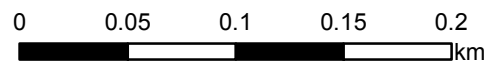


**Key**

Survey Area

**Population Size Class**

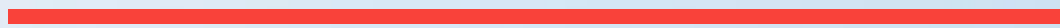
- Large
- Medium
- Small
- Eggs Only
- Absent



<b>Client:</b>	Great Wolf Resorts		
<b>Project:</b>	Bicester		
<b>Title:</b>	Survey Results: Presence / Likely Absence and Population Size Class		
<b>Drawing No:</b>	Figure 3	<b>Drawn:</b>	RD
<b>Date:</b>	January 2019	<b>Checked:</b>	LR
<b>Scale:</b>	3,500 @ A3	<b>Approved:</b>	AH



# Appendix A



IMAGES

Photographs were taken of the ponds during the Phase 1 habitat survey of the survey area on 31 January 2018.




**Table 4 - Photographs**

Pond Reference	Photograph
SW1	
SW2	
SW3	

Pond Reference	Photograph
SW4	 A photograph of a small, irregularly shaped pond. The water is dark and reflects the surrounding trees and sky. The pond is surrounded by a mix of green grass and bare, brownish shrubs and trees, suggesting a late autumn or winter setting.
SW5	 A photograph of a larger, more rectangular pond. The water is calm and reflects the sky. The pond is bordered by a grassy area on the right and a dense thicket of tall, brown reeds or grasses on the left. The background shows a line of trees under a clear sky.
SW6	 A photograph of a long, narrow pond that curves through a grassy field. The water is dark and reflects the sky. A single, small tree stands in the water on the right side. A red and black marker is visible in the foreground on the right. The background consists of a line of trees.
SW7	 A photograph of a pond surrounded by dense, bare trees and shrubs. The water is dark and reflects the surrounding vegetation. The pond is situated in a wooded area with a grassy bank in the foreground.

Pond Reference	Photograph
SW8	
SW9	
SW10	
SW11	

Pond Reference	Photograph
SW12	
SW13	
SW14	
SW15	

Pond Reference	Photograph
SW16a	
SW16b	
SW17	

# Appendix B

HSI CALCULATIONS



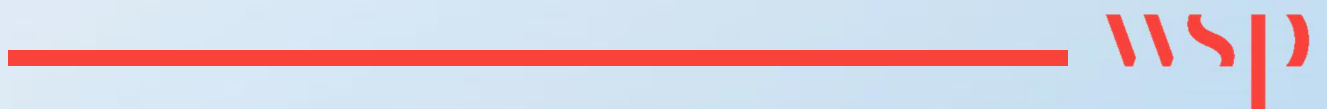
**Table 5 - HSI Calculations**

Pond Reference	Geographic Location	Pond Area	Permanence	Water Quality	Shade	Fowl	Fish	Pond Count	Terrestrial	Macrophytes	HSI Score	HSI Category
1	1	0.8	0.9	1	1	0.67	1	1	0.67	0.35	0.80	Excellent
2	1	0.85	0.9	1	1	0.01	0.67	1	1	0.8	0.58	Below Average
3	1	0.2	0.5	0.67	0.4	1	1	1	1	0.9	0.69	Average
4												Not Calculated
5	1	0.6	0.9	1	1	0.01	0.67	1	1	0.8	0.56	Below Average
6	1	0.6	0.9	1	1	0.67	0.33	1	1	0.6	0.77	Good
7	1	0.9	0.9	1	0.6	0.67	0.33	1	1	0.6	0.76	Good
8	1	0.6	0.9	0.67	1	0.01	1	1	1	0.8	0.56	Below Average
9	1	0.85	0.5	0.67	1	0.01	0.67	1	1	0.9	0.53	Below Average
10	1	0.5	0.1	1	1	1	1	1	0.67	0.5	0.66	Average
11	1	0.9	0.9	1	1	0.01	0.01	1	0.67	0.35	0.337	Poor
12	1	0.1	0.5	1	1	1	1	1	0.67	0.35	0.64	Average
13	1	0.6	0.9	0.67	1	0.01	0.01	1	0.67	0.4	0.32	Poor
14	1	0.6	0.9	0.67	1	0.67	0.67	1	0.67	0.5	0.75	Good
15	1	0.6	0.9	0.67	1	0.67	0.67	1	0.67	0.35	0.72	Good
16	1	0.85	0.9	0.67	1	0.01	0.01	1	0.67	0.35	0.32	Poor
16b	1	0.6	0.9	0.33	1	0.01	0.01	1	0.67	0.4	0.29	Poor
17	1	0.5	0.5	0.67	0.8	0.01	0.67	1	1	0.35	0.45	Poor



# Appendix C

PRESENCE / LIKELY ABSENCE  
SURVEY RESULTS



**Table 6 - Pond 1 Survey Results**

Pond Reference		1						
Date	GCN detected	GCN Peak adult count <sup>3</sup>	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
24/04/2018	Yes	15	Medium	Yes	6	0	1	Common frog, Smooth newt
30/04/2018	Yes	1	Small	No	2	0	0	Smooth newt
08/05/2018	Yes	56	Medium	Yes	4	0	0	Smooth newt
29/05/2018	Yes	8	Small	No	13	0	0	Smooth newt
05/06/2018	Yes	12	Medium	Yes	8	1	1	Smooth newt
11/06/2018	Yes	10	Small	Yes	14	0	0	Smooth Newt

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<sup>3</sup> Using one survey method (i.e. torch or bottle trap)



**Table 7 - Pond 2 Survey Results**

Pond Reference		2						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
25/04/2018	Yes	33	Medium	Yes	5	1	1	Smooth newt
01/05/2018	Yes	70	Medium	No	8	1	1	Smooth newt
09/05/2018	Yes	107	Large	No	9	2	1	Smooth newt
30/05/2018	Yes	17	Medium	No	12	2	0	Smooth newt
06/06/2018	Yes	25	Medium	No	9	3	1	Smooth newt
12/06/2018	Yes	16	Medium	Yes	5	2	0	

**Table 8 - Pond 3 Survey Results**

Pond Reference		3						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
24/04/2018	No	0	n/a	No	6	4	0	Smooth newt
30/04/2018	Yes	1	Small	No	2	2	0	Smooth newt
08/05/2018	Yes	1	Small	No	4	4	1	Smooth newt
29/05/2018	Yes	1	Small	Yes	14	2	0	Smooth newt
05/06/2018	No	0	n/a	No	8	2	1	Smooth newt
11/06/2018	Yes	1	Small	No	14	0	0	Smooth newt



**Table 9 - Pond 5 Survey Results**

Pond Reference		5						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
25/04/2018	Yes	31	Medium	Yes	5	2	2	Smooth newt
01/05/2018	Yes	11	Medium	No	8	2	1	Smooth newt
09/05/2018	Yes	107	Large	No	9	2	2	Smooth newt
30/05/2018	Yes	10	Small	No	12	3	3	Smooth newt
06/06/2018	Yes	6	Small	No	9	4	2	Smooth newt, Common toad
12/06/2018	Yes	11	Medium	No	5	3	1	Smooth newt

**Table 10 - Pond 6 Survey Results**

Pond Reference		6						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
25/04/2018	Yes	10	Small	Yes	5	1	2	Smooth newt
01/05/2018	Yes	16	Medium	No	8	1	2	Smooth newt
09/05/2018	Yes	12	Medium	No	9	2	1	Smooth newt
30/05/2018	Yes	12	Medium	No	12	2	1	Smooth newt
06/06/2018	Yes	5	Small	No	9	3	0	Smooth newt
12/06/2018	Yes	7	Small	No	5	2	1	Smooth newt



**Table 11 - Pond 7 Survey Results**

Pond Reference		7						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
25/04/2018	Yes	44	Medium	Yes	5	2	1	Smooth newt
01/05/2018	Yes	56	Medium	No	8	2	0	Smooth newt
09/05/2018	Yes	92	Medium	No	9	2	1	Smooth newt
30/05/2018	Yes	41	Medium	No	12	0	0	
06/06/2018	Yes	8	Small	No	13	2	0	Smooth newt
12/06/2018	Yes	15	Medium	No	5	1	0	Smooth newt

**Table 12 - Pond 8 Survey Results**

Pond Reference		8						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
25/04/2018	Yes	13	Medium	No	5	2	2	Smooth newt
01/05/2018	Yes	16	Medium	No	8	1	2	
09/05/2018	Yes	21	Medium	Yes	9	2	1	Smooth newt
30/05/2018	Yes	6	Small	No	13	3	1	Smooth newt
06/06/2018	Yes	9	Small	Yes	9	4	2	Smooth newt
12/06/2018	Yes	8	Small	No	5	3	1	





**Table 13 - Pond 9 Survey Results**

Pond Reference		9						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
25/04/2018	Yes	20	Medium	Yes	5	2	0	Smooth newt
01/05/2018	Yes	27	Medium	Yes	8	3	0	Smooth newt
09/05/2018	Yes	37	Medium	No	9	3	1	Smooth newt
30/05/2018	Yes	14	Medium	No	12	3	1	Smooth newt
06/06/2018	Yes	2	Small	Yes	9	4	2	Smooth newt
12/06/2018	Yes	3	Small	No	5	2	4	Common Toad

**Table 14 - Pond 10 Survey Results**

Pond Reference		10						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
24/04/2018	Yes	3	Small	No	6	2	1	Smooth newt
30/04/2018	No	0	n/a	No	2	3	2	Smooth newt
08/05/2018	Yes	3	Small	No	4	3	1	Smooth newt
29/05/2018	No	0	n/a	Yes	13	1	1	Smooth newt
05/06/2018	Yes	4	Small	No	8	1	1	Smooth newt
11/06/2018	Yes	8	Small	No	14	1	1	Smooth newt, Common toad, Common frog



**Table 15 - Pond 11 Survey Results**

Pond Reference		11						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
24/04/2018	No	0	n/a	No	6	0	4	
30/04/2018	No	0	n/a	No	3	0	3	
08/05/2018	No	0	n/a	Yes	4	1	4	
29/05/2018	No	0	n/a	No	13	0	3	
05/06/2018	No	0	n/a	No	8	0	3	
11/06/2018	No	0	n/a	No	14	0	2	Common toad

**Table 16 - Pond 12 Survey Results**

Pond Reference		12						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
24/04/2018	Yes	13	Medium	No	6	2	0	Smooth newt
30/04/2018	Yes	10	Small	No	6	2	0	Smooth newt
08/05/2018	Yes	17	Medium	Yes	4	3	0	Smooth newt
29/05/2018	Yes	5	Small	No	13	4	0	Smooth newt
05/06/2018	No	0	n/a	No	8	4	0	
11/06/2018	Yes	6	Small	Yes	14	4	0	Smooth newt



**Table 17 - Pond 13 Survey Results**

Pond Reference		13						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
24/04/2018	No	0	n/a	No	6	0	4	Common toad
30/04/2018	No	0	n/a	No	2	0	3	
08/05/2018	No	0	n/a	No	4	1	3	
29/05/2018	No	0	n/a	No	12	0	4	
05/06/2018	No	0	n/a	No	0	1	4	Common toad
11/06/2018	No	0	n/a	No	0	0	0	

Signal crayfish also found in this pond for surveys 1, 3 and 5

**Table 18 - Pond 14 Survey Results**

Pond Reference		14						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
26/04/2018	Yes	22	Medium	Yes	6	1	2	Smooth newt
02/05/2018	Yes	16	Medium	No	4	2	2	Smooth newt
10/05/2018	Yes	22	Medium	No	6	3	2	Smooth newt
31/05/2018	Yes	7	Small	No	0	1	2	Smooth newt
07/06/2018	Yes	11	Medium	Yes	13	2	2	Smooth newt
13/06/2018	Yes	10	Small	Yes	14	2	1	Smooth newt, Common frog



**Table 19 - Pond 15 Survey Results**

Pond Reference		15						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
26/04/2018	Yes	3	Small	No	6	1	2	Smooth newt
02/05/2018	Yes	14	Medium	Yes	4	1	2	Smooth newt
10/05/2018	Yes	105	Large	No	6	1	1	Smooth newt
31/05/2018	Yes	3	Small	No	0	0	2	Smooth newt
07/06/2018	No	0	n/a	No	0	0	0	Smooth newt
13/06/2018	No	0	n/a	Yes	14	0	2	Smooth newt, Common Toad

**Table 20 - Pond 16a Survey Results**

Pond Reference		16a						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
26/04/2018	No	0	n/a	No	6	0	2	Common toad
02/05/2018	No	0	n/a	No	4	2	2	Common frog
10/05/2018	No	0	n/a	Yes	9	1	2	Common frog
31/05/2018	No	0	n/a	No	0	1	1	
07/06/2018	No	0	n/a	No	9	1	1	
13/06/2018	No	0	n/a	No	14	1	2	





**Table 21 - Pond 16b Survey Results**

Pond Reference		16b						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
26/04/2018	No	0	n/a	No	6	0	3	Common toad
02/05/2018	Yes	1	Small	No	4	0	4	Common toad, Common frog
10/05/2018	No	0	n/a	No	9	1	4	Common toad, Common frog
31/05/2018	No	0	n/a	No	0	0	4	Common toad, Common frog
07/06/2018	No	0	n/a	No	13	1	5	
13/06/2018	No	0	n/a	No	14	0	4	Common frog

**Table 22 - Pond 17 Survey Results**

Pond Reference		17						
Date	GCN detected	GCN Peak adult count	GCN Population Size Class	GCN Eggs or Larvae present	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians Recorded
26/04/2018	Yes	44	Medium	Yes	6	1	2	Smooth newt
02/05/2018	Yes	7	Small	No	4	1	1	Smooth newt
10/05/2018	Yes	25	Medium	Yes	6	2	2	Smooth newt
31/05/2018	Yes	26	Medium	No	0	4	0	Smooth newt
07/06/2018	Yes	8	Small	No	13	4	0	Smooth newt
13/06/2018	No	0	n/a	No	14	1	2	



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