



Great Crested Newt Monitoring Survey 2019

Cinderford Northern Quarter, Forest of Dean



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1.0 Introduction

1.1 Background

- 1.1.1 Nicholas Pearson Associates (NPA) was commissioned by Forest of Dean District Council (FDDC) in March 2019 to undertake Great Crested Newt (GCN) (*Triturus cristatus*) pond monitoring at Cinderford Northern Quarter (CNQ), in Gloucestershire.
- 1.1.2 The Cinderford Northern Quarter (CNQ) is located to the north-west of Cinderford in the Forest of Dean. An Area Action Plan (AAP) for the Northern Quarter was published in 2012. The AAP seeks to enable significant regeneration opportunities within the area whilst respecting the ecological importance of the area. Great Crested Newt surveys undertaken by John Associates in 2012 and 2013 to inform the planning application, identified a number of ponds on site (34 in 2012, 33 in 2013) and confirmed GCN presence within 17 of these.
- 1.1.3 In 2014 the Homes and Community Agency (HCA) was granted planning permission to build a new education facility, hotel, office and industrial space, new homes and spine road within the AAP area. A Great Crested Newt Master Plan was prepared to satisfy Natural England European Protected Species Licence (EPSL) licence guidance in relation to phased or multi-plot developments. The document describes the impacts associated with the licence phases within the CNQ including an indication of potential impacts for future licence phases. The document also provides an overview of the mitigation, compensation and monitoring requirements for Great Crested Newt that will be adopted for each licence phase.
- 1.1.4 The planning permission also includes a Section 106 which is the mechanism for delivering the mitigation set out in the GCN master plan and licence.
- 1.1.5 The first phase of the spine road and the new college has now been completed. Also as part of the permission, conifer plantation on land to the south of the AAP area has been removed and replaced with new ponds, grassland and broadleaf woodland, in order to avoid net loss of habitat for a variety of protected and important species including great crested newts.

1.2 Previous monitoring surveys

- 1.2.1 In 2015, Ecus Ltd surveyed 20 ponds and recorded confirmed presence of GCN within 15, of which six were noted as breeding ponds.

1.2.2 In addition to these known ponds, a series of new ponds N1, N2, N3 and N4, were constructed as part of the EPSL mitigation provisions. As such, the total number of ponds surveyed during the monitoring surveys undertaken by Ecus Ltd in 2017 was 42 individual ponds or pond complexes. GCN were recorded in 23 ponds, with breeding noted in four of these.

1.2.3 The hydrology of the site is highly changeable, and therefore during subsequent surveys, additional ponds have been discovered and/or lost during the on-going monitoring. In 2018, 38 ponds were identified and surveyed by Ecus Ltd. GCN were recorded in 23, with breeding noted in 10 of these.

1.3 Purpose and Scope of Report

1.3.1 This report sets out the findings of the 2019 surveys required under the EPSL mitigation licence and the Section 106. It will inform the future development of the CNQ and monitor the effectiveness of the habitat creation.

1.3.2 The monitoring includes the following for all ponds included within the assessment:

- Population size class surveys
- Condition assessment of ponds including Habitat Suitability Index (HSI)
- Condition assessment of surrounding terrestrial habitat

1.3.3 This data will be used to review the effectiveness of the compensatory provision for GCN and assess its success or otherwise and, if necessary, recommend remedial measures.

2.0 Methodology

2.1 Introduction

2.1.1 Surveys were undertaken under the appropriate Natural England GCN licence and were led by Steve Maguire (class licence CL08 registration number: 2015-17726-CLS-CLS). Surveys were undertaken in two teams each with at least one GCN licensed ecologist. The additional licensed GCN ecologist was Dave Harvey (class licence CL08 registration number: 2016-20243-CLS-CLS) . Survey dates and weather conditions are provided in Appendix 3. Pond locations were provided by the client and are shown in Figure 1 & 2.

2.2 Habitat Suitability Index Assessment

2.2.1 All ponds were assessed for their potential to support GCN using the Habitat Suitability Index Assessment (HSI) methodology (Oldham et al., 2000). The HSI assessment process provides an effective assessment of the suitability of the pond for great crested newts, based on ten suitability indices, such as water quality and pond size (ranging from 0 to 1), which indicates the suitability of a waterbody for supporting GCN. The higher the HSI score, the more suitable (or closer to optimum habitat conditions) the waterbody is considered to be for GCN. On the basis of the HSI score, the pond is assessed as having 'poor', 'below average', 'average', 'good', or 'excellent' suitability for supporting GCN.

Table 2.1 Habitat Suitability Index Scores

HSI Score	Suitability for GCNs
<0.5	Poor suitability
0.5 – 0.59	Below average suitability
0.6 – 0.69	Average suitability
0.7 – 0.79	Good suitability
> 0.8	Excellent suitability

2.2.2 However, it is important to recognise that a low suitability score does not necessarily mean that GCN will not be present.

2.2.3 The HSI scores are provided in Appendix 1.

2.3 Pond Condition and Terrestrial Habitat Assessment

2.3.1 A pond condition and terrestrial habitat assessment was carried out for all ponds to be monitored, following the approach set out by Ecus Ltd in its 2017 & 2018 monitoring reports. Pond condition was assessed with regard to the presence of invasive species, silt levels and evidence of pollution incidence, fire or damage, in order to give a broader assessment of the condition of each of the ponds.

2.3.2 Pond condition was scored into four categories: 'poor', 'fair', 'good' and 'excellent'. The scores were based on criteria set out below in Table 2.2. The detailed matrix used to assess each pond is provided in Appendix 2.

Table 2.2: Pond Condition Score Methodology

Pond Condition Score			
Poor	Fair	Good	Excellent
-If non-native invasive species are present, pond condition is considered poor. - If non-native invasive species are absent but silt levels are high and dumped rubbish is present, then pond condition is considered poor	-Non-native invasive species are absent. - High silt levels but dumped rubbish is absent, or - Moderate silt levels but dumped rubbish is present.	-Non-native invasive species are absent. - Moderate silt levels and dumped rubbish is absent, or - Low silt levels but some dumped rubbish is present.	- Non-native invasive species and dumped rubbish is absent. - Silt levels are low.

2.4 GCN Population Size Class Estimate Survey

2.4.1 GCN surveys of the 31 ponds on site (those that were able to be surveyed) were undertaken following methodologies described in the GCN Mitigation Guidelines (English Nature, 2001). In accordance with best practice guidelines, each pond was visited six times with at least three visits occurring between mid-April and mid-May, on nights when air temperatures exceeded 5°C.

2.4.2 Surveys used a combination of techniques appropriate to the site conditions at the time of survey. Techniques used included;

- trapping with bottle traps,
- torchlight searches,

- egg searches and
- terrestrial search.

2.4.3 The survey techniques used varied between water bodies and visits, with at least three techniques employed on each visit.

2.4.4 Records were made of the weather conditions, vegetation cover and turbidity of the water.

Bottle trapping

2.4.5 The number of bottle traps placed in each pond was determined based upon best practice guidelines, utilising a density of one trap per two meters of shoreline to ensure consistency in survey effort. Traps were deployed in groups of fives to minimise the risk of leaving traps. The number of traps used in each survey visit is provided in the table in Appendix 3.

2.4.6 Bottles were left in place overnight, and checked the following morning before 11:00 am or earlier, when air temperatures were warmer. Any animals found in the bottle traps were recorded and then and immediately released. Any animals found, where possible the species, sex and an assessment of age, was recorded.

2.4.7 As part of the standard survey protocols, biosecurity measures were taken to prevent the possible spread of disease. Boots were washed with Virkon solution between different groups of ponds in the same night. This was to prevent the spread of chytrid fungus (*Batrachochytrium dendrobatidis*), a known fungal disease harmful to amphibians. Virkon deactivates quickly in the environment once activated and is an industry recognised bio-control measure.

Torch survey

2.4.8 Torch surveys were completed using 1 million candle power Cluson Clu-Light torches, within the shallow water around the perimeter of each pond.

2.4.9 A systematic approach was followed to ensure full coverage of the ponds. Records of observations were made onto field survey data forms that included species, sex and an assessment of age, where possible.

Hand Search

2.4.10 Surveyors undertook a hand search of aquatic vegetation to determine presence of GCN eggs. Searches were undertaken during the bottle trapping process and were conducted systematically

around the pond to ensure all sections of suitable vegetation were searched, where access allowed. Surveyors looked for the eggs that are laid individually and enclosed in a folded leaf. They can be quite conspicuous as GCN often use vegetation that is near the surface of the water. Searches were undertaken for a minimum of 15 minutes per pond by two surveyors, or until the presence of eggs was confirmed. Once GCN egg presence was confirmed in a pond, no further egg searches were conducted during subsequent surveys, in order to minimise disturbance to any laid eggs.

2.4.11 Terrestrial searches were also undertaken as an alternative method where one of the others listed above could not be implemented. The survey involved carefully searching the margins of the ponds as well as natural and artificial hibernacula present around the ponds.

2.5 Survey limitations

2.5.1 As documented in previous reports, the hydrology of the land is unstable. In comparison with the 2017 and 2018 surveys, there has been changes in a number of the waterbodies over the three years, with some ponds drying out or others reforming into individual ponds. Table 3.4 summarises the survey results since 2017 and also highlights the variations in water level, with 2018 maintaining largest number of suitable ponds.

2.5.2 Some of the ponds have remained dry since 2017, which included Ponds 22 and 34. Other ponds that were dry in 2017, subsequently held a shallow amount of water in 2018, have now since become dry again for the 2019 surveys, namely Ponds 7, 13a, and 33.

2.5.3 In addition, Ponds 15 and 32 that had previously held water in 2017 and 2018, were now dry.

2.5.4 The water levels in pond 13 and 21 fluctuated significantly during the surveys, with the levels in both dropping substantial, before increasing on the final visits. Bottle trap numbers were adjusted accordingly to reflect the changes in water levels.

2.5.5 A torch survey could not be undertaken on every visit to Pond 24 due to turbidity and the amount of surface vegetation. On the visits where a torch survey could not be completed, a terrestrial search was conducted as an alternative method.

2.5.6 As in 2017 and 2018, Pond 19 is not considered to be a separate water body, as it is directly linked to Pond 1. Therefore, Pond 1 and Pond 19 were subject to GCN surveys as a single water body.

2.5.7 In 2017 & 2018, Ponds 23 a, b & c were no longer three separate ponds but had merged to form one large pond and was surveyed as such. However, in 2019 the water levels had dropped so that

23a was separated from 23b&c by approximately 5m and hence was surveyed as an individual pond.

2.5.8 Pond 17 is still considered to be connected to Pond 23b&c and was surveyed as a single waterbody.

2.5.9 For reference, Pond 10 (fishing lake) and 29 (filled in) had been excluded from the assessment.

2.5.10 After excluding the dry ponds and combining the ponds considered as single water bodies, the total number of ponds surveyed was 31.

3.0 Results

3.1 Habitat Suitability Index

3.1.1 HSI assessments were carried out on all the ponds. Table 3.1 shows an overview of the individual pond scores, with detailed information presented in Appendix 1.

Table 3.1 Habitat Suitability Index Assessment Summary

HSI Condition	Pond Number	Number of Ponds
Excellent	2, 3, 6, 8, 11, 21, 23b&c, 24, 26, N2	10
Good	1, 4, 9, 14, 16, 25, 27b, 27c, 31, N1, N3	11
Average	5, 18A, 20, 27A, 30, N4	6
Below Average	13, 18b, 23a, 28	4

3.1.2 Of the 31 ponds surveyed, 21 were scored as being excellent or good, 6 as being average, and 4 as being below average.

3.2 Pond condition and terrestrial habitat assessment

3.2.1 The pond condition and terrestrial habitat assessment graded nearly all of the suitable ponds (those that were not dry) as 'Good' condition or above. The summary of the results are shown in Table 3.2 below and the complete pond condition assessment is presented in Appendix 2.

Table 3.2 Pond Condition and Terrestrial Habitat Assessment Summary

Condition	Pond Number	Number of Ponds
Excellent	9, 26, 28, 31, N1	5
Good	2, 3, 4, 5, 6, 8, 11, 13, 16, 20, 21, 23a, 23b&c, 24, 25, 27a, 27b, 27c, 30, N2, N3, N4	22
Fair	1, 14	2
Poor	18a, 18b	2

3.2.2 The results illustrate that the very great majority of ponds are considered to be in good or excellent condition, with only ponds 18a and 18b shown to be in a poor condition.

3.2.3 This demonstrates that the site is well maintained with few incidences of the presence of rubbish, pollution or invasive species.

3.3 Great Crested Newt Surveys (Population Size Class Estimate)

3.3.1 Of the 31 ponds surveyed, presence of GCN was confirmed in 21 ponds, of which 11 ponds were confirmed as breeding ponds (red text). The results are shown in Table 3.3, with full survey information in Appendix 3. The locations of the ponds with confirmed GCN presence are shown in Figure 2.

Table 3.3 Summary of Population Size Class Assessment Surveys

Pond Number	GCN Found	Eggs Found	Peak Count (Method)
1 & 19	No	No	-
2	No	No	-
3	No	No	-
4	Yes	Yes	6 (bottle traps)
5	Yes	No	2 (bottle traps)
6	Yes	Yes	31 (torching)
7	Dry		
8	Yes	Yes	34 (bottle traps)
9	No	No	-
10	Does not require monitoring		
11	Yes	Yes	3 (torching)
12	Unsuitable – stocked fishing lake		
13	Yes	No	1 (bottle traps)
13a	Dry		
14	Yes	No	1 (bottle traps)
15	Dry		
16	No	No	-
17	Now forms part of Pond 23b, c		
18a	No	No	-
18b	No	No	-
19	Now part of Pond 1		
20	No	No	-
21	Yes	No	6 (bottle traps)
22	Dry		
23a	No	No	-
23b, c	Yes	No	6 (torching)
24	Yes	No	2 (bottle traps)

Pond Number	GCN Found	Eggs Found	Peak Count (Method)
25	Yes	No	1 (bottle traps)
26	Yes	Yes	9 (torching)
27a	Yes	Yes	1 (torching)
27b	Yes	No	7 (bottle traps)
27c	No	No	-
28	Yes	Yes	2 (bottle traps)
29	No longer present		
30	Yes	Yes	4 (torching)
31	Yes	Yes	7 (bottle traps)
32	Dry		
33	Dry		
34	Dry		
N1	Yes	Yes	11 (torching)
N2	Yes	No	4 (bottle traps)
N3	Yes	Yes	28 (torching)
N4	Yes	No	3 (torching)

3.4 Comparison between GCN surveys undertaken in 2017 and 2018 to 2019

3.4.1 Table 3.4. provides the results of the population size class estimate surveys undertaken over the last three years. In summary:

- 2017 – 21 ponds (from 32) supported GCN, of which breeding was confirmed in four;
- 2018 – 23 ponds (from 36) supported GCN, of which breeding was confirmed in 10;
- 2019 – 21 ponds (from 31) supported GCN, of which breeding was confirmed in 11.

Table 3.4 Comparison between 2017,2018 & 2019 Population Size Class Assessment Surveys

Pond Number	2017		2018		2019	
	GCN Found & No & method	Eggs Found	GCN Found & No & method	Eggs Found	GCN Found & No & method	Eggs Found
1 & 19	No	No	No	No	No	No
2	Yes (1 torch)	No	Yes (1 torch)	No	No	No
3	Yes (1 bottle)	No	Yes (4 bottle)	No	No	No
4	Yes (2 bottle)	No	Yes (9 bottle)	Yes	Yes (6 bottle)	Yes
5	Yes (5 bottle)	No	Yes (5 bottle)	No	Yes (2 bottle)	No

Pond Number	2017		2018		2019	
	GCN Found & No & method	Eggs Found	GCN Found & No & method	Eggs Found	GCN Found & No & method	Eggs Found
6	Yes (55 bottle)	No	Yes (41 bottle)	No	Yes (31 torch)	Yes
7	Dry		Yes (2 bottle)	No	Dry	
8	Yes (27 bottle)	No	Yes (16 bottle)	Yes	Yes (34 bottle)	Yes
9	No	No	Yes (26 bottle)	No	No	No
10	Unsuitable		Unsuitable		Does not require monitoring	
11	Yes (5 torch)	No	Yes (12 bottle)	No	Yes (3 torch)	Yes
12	No	No	No	No	Unsuitable – stocked fishing lake	
13	Dry		Yes (1 torch)	No	Yes (1 bottle)	No
13a	Dry		No	No	Dry	
14	No	No	No	No	Yes (1 bottle)	No
15	No	No	No	No	Dry	
16	No	No	No	No	No	No
17	N/A – Unsuitable for surveys as flowing ditch		N/A – Unsuitable for surveys as flowing ditch		Now forms part of Pond 23b, c	
18a	No	No	No	No	No	No
18b	No	No	No	No	No	No
19	Now part of Pond 1		Now part of Pond 1		Now part of Pond 1	
20	No	No	No	No	No	No
21	Yes (6 bottle)	No	Yes (11 torch)	No	Yes 6 (bottle)	No
22	Dry		Dry		Dry	
23a	Part of 23 b & c		Part of 23 b & c		No	No
23b, c	Yes (5 torch)	Yes	Yes (5 torch)	Yes	Yes (6 torch)	No
24	Yes (2 torch)	No	Yes (6 bottle)	No	Yes (2 bottle)	No
25	Yes (5 bottle)	Yes	Yes (5 bottle)	Yes	Yes (1 bottle)	No
26	Yes (6 torch)	No	Yes (11 torch)	Yes	Yes (9 torch)	Yes
27a	No	No	Yes (1 torch)	No	Yes (1 torch)	Yes
27b	Yes (1 bottle)	No	Yes (3 bottle)	Yes	Yes (7 bottle)	No
27c	No	No	No	No	No	No
28	Yes (2 bottle)	No	Yes (2 bottle)	Yes	Yes (2 bottle)	Yes
29	Dry		Dry		Dry	
30	Yes (5 torch)	No	Yes (6 bottle)	No	Yes (4 torch)	Yes
31	Yes (3 bottle)	No	Yes (11 bottle)	No	Yes (7 bottle)	Yes
32	Yes (1 bottle)	No	No	No	Dry	
33	Dry		No	No	Dry	

Pond Number	2017		2018		2019	
	GCN Found & No & method	Eggs Found	GCN Found & No & method	Eggs Found	GCN Found & No & method	Eggs Found
34	Dry		Dry		Dry	
N1	Yes (9 bottle)	Yes	Yes (8 bottle)	Yes	Yes (11 torch)	Yes
N2	Yes (9 bottle)	No	Yes (8 bottle)	Yes	Yes (4 bottle)	No
N3	Yes (9 bottle)	Yes	Yes (3 bottle)	Yes	Yes (28 torch)	Yes
N4	Dry		No	No	Yes (3 torch)	No

3.5 Additional species recorded

3.5.1 Numerous incidental records of smooth newt (*Lissotriton vulgaris*), palmate newt (*Lissotriton helveticus*), common frog (*Rana temporaria*) and common toad (*Bufo bufo*) were recorded in the majority of the ponds.

3.5.2 Many of the ponds had fish species present, including three-spined stickleback (*Gasterosteus aculeatus*) in various ponds throughout the site and a perch species (*Perca spp*) in ponds 18a and 18b.

3.5.3 A European Eel (*Anguilla anguilla*) was recorded in Pond 27c.

4.0 Assessment and Recommendations

4.1 Legislation

- 4.1.1 GCNs are a European Protected Species (EPS) and as such receive protection under The Conservation of Habitats and Species Regulations 2017 (as amended), also known as the Habitat Regulations, and the Wildlife and Countryside Act 1981 (as amended).
- 4.1.2 It is illegal to kill, injure, capture, handle or disturb EPS, and the places they use for breeding, resting, shelter and protection are protected from being damaged or destroyed. GCN are a Species of Principal Importance under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act).
- 4.1.3 Smooth newt, palmate newt, common frog and common toad are included in Section 9(5) of the Wildlife and Countryside Act 1981 (as amended) which prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy these species. Common toad is also a Species of Principal Importance under Section 41 of the NERC Act.

4.2 GCN Population Size Class Assessment

- 4.2.1 The CNQ continues to support a good population of GCN with numbers relatively comparable to previous surveys undertaken (JNCC, 1998). However, it is considered that the population is - as also noted in 2018 – possibly favouring different ponds during 2019. There are slight decreases in the peak counts within 16 ponds, although this only relates to small numbers (<10 individuals) and generally does not affect the population class assessment (English Nature, 2001).
- 4.2.2 The exception to this is Pond 9, where there is a marked decline. There was a peak count of 26 in 2018 but with no GCN recorded during the 2019 surveys. There is no clear explanation for this, although it may be of note that GCN were also entirely absent in 2017.
- 4.2.3 GCN were not recorded in Ponds 2&3. However, these ponds only recorded low peak counts in 2017 & 2018 so it is probable that the GCN were not detected in these ponds and are present in a low number, rather than being entirely absent (English Nature, 2001). The water levels did significantly decrease in both ponds by the final survey and were approximately 80% lower than during the first survey.
- 4.2.4 There were increases in peak counts in Ponds 8, 23b&c, 27b, N1 and N4. GCN were recorded, albeit in low numbers, in Ponds 14 and N4 for the first time over the three years.

4.2.5 In terms of waterbodies where breeding GCN had been confirmed (through identification of GCN eggs), there was a slight increase in the number, but some change in the ponds themselves. GCN were not found breeding in Ponds 23b &c, 25, 27b and N2, as they had in 2018, but they were now recorded breeding in 6, 11, 27a, 30 & 31, bringing the total number of breeding ponds up to 11.

4.3 Pond habitat suitability and condition assessments

4.3.1 Of the 31 ponds assessed using the recognised HSI methodology, 21 were scored as being 'good' or 'excellent', six as 'average' and four as 'below average'.

4.3.2 The project specific pond condition assessment produced only two ponds being scored as 'poor' and two ponds being scored as 'fair'. 22 ponds were scored as 'good' and five as 'excellent'. Some of the ponds have improved from 'fair' to 'good', whilst some ponds reduced from 'excellent' to 'good' due to the presence of litter.

4.3.3 Generally, these results reflect the relatively tidy nature of the site and indicate that there has been a slight improvement across the site, with the exception of a few incidences of rubbish and/or fly tipping.

4.4 Compensatory provision for GCN assessment

4.4.1 The four new ponds (N1-N4) have all now recorded GCN, with two noted this year as confirmed breeding ponds. N4 has recorded GCN for the first time, with a small peak count of 3. There has been a good increase in the peak count in N3, up from 3 in 2018 to 28 in 2019. The HSI assessment also recorded a good macrophyte cover in N1, N2 & N3. In addition, the water levels in N4 appear to have stabilised.

4.4.2 This indicates that they are effective in their design and are becoming established ponds by steadily developing a strong flora and invertebrate fauna association. It is considered that some positive intervention management would be beneficial to these ponds as discussed below.

4.4.3 All four ponds recorded smooth and palmate newts.

4.5 Recommendations

4.5.1 It is considered that the following recommendations would benefit GCN, as well as other species of amphibians and reptiles. It incorporates the recommendations set out in the 2018 Monitoring Report (Ecus Ltd, 2017 & 2018).

Re-establishment and maintenance of ponds

- 4.5.2 It is noted that there was an increase in dry or defunct ponds in 2019 from those recorded in 2018. This was despite above average levels of rainfall throughout much of the south of the UK in Spring 2019 (www.metoffice.gov.uk). Whilst N4 retained water this year, the recommendation in the 2018 Monitoring Report (Ecus, 2018) that additional clay lining may be required to repair the lining, is still applicable.
- 4.5.3 It is likely that a number of the ponds have dried out due to the fluctuating hydrology of the site. It may be beneficial to scrape out these ponds to increase the likelihood of them holding water in the future. However, a pond that dries out seasonally during hot summer, can be highly beneficial within a wider network of ponds as it can prevent the establishment of predators, such a fish.
- 4.5.4 In addition, those ponds that do not hold water and have become a marshy hollow, may still provide excellent habitat for a range of species. Therefore, repair work which would improve the ponds for GCN may not be necessary to make the ponds suitable for other wildlife.

Pond de-vegetation

- 4.5.5 Sensitive, gentle removal of vegetation will be beneficial to prevent encroachment. This will also increase breeding display areas and may allow re-establishment of other plants species that can be favourable egg laying plants for GCN. Ponds that would benefit the most from this include ponds 24 and 25.

Removing the fish species from ponds

- 4.5.6 Fish, including three-spined stickleback, are known to predate the eggs and larvae of GCN. Therefore, removing fish from the ponds would potentially increase the survival rate of newt eggs and larvae and have the positive impact of increasing over time the amount of breeding adults.
- 4.5.7 Ponds 18a and 18b both had larger fish, notably perch that is often introduced to waterways by anglers. These ponds are next to Steam Mills Lake (pond 10), which is a coarse fishing pond. It is considered that removing the fish stock from these would not have a lasting positive impact as they are likely to be restocked by anglers. Signage may be beneficial adjacent to these ponds to help educate the anglers on the sensitive nature of the ponds. Pond 12 is the managed Meadowcliffe Fishing Lake and is stocked with coarse fish.

4.5.8 Electrofishing can be an effective method to remove fish; however, they can make a return to the ponds. For this to be effective, the process may need to be repeated over a number of years.

Pond shading

4.5.9 The thinning of trees and scrub around ponds will allow for sufficient light to reach the pond in improve conditions for emergent plant species within the shallows. This in turn would also stimulate plant growth at the ground level, improving habitat connectivity and foraging habitat for a variety of animals including GCN and other amphibians and reptiles. This is recommended in particular for pond 30, as also recommended in 2018.

Aquatic plant introduction

4.5.10 The planting of suitable aquatic flora within several ponds is recommended to increase egg laying opportunities and daytime cover for GCN and other amphibians. Species could include a mix of grasses (e.g. sweet or flote grasses *Glyceria spp.*), small wide-leaved plants (e.g. water mint *Mentha aquatica*), or narrow-leaved plants (e.g. water forget-me-not *Myosotis scorpioides* (Froglife, 2001). Ponds that would benefit from this are those suggested in 2018: 5, 13, 16, 30 and 31, and N1, N2, N3 and N4.

Pollution Incidences

4.5.11 A reporting mechanism for pollution and tipping incidences, as well as general site and pond conditions is recommended. The appointment of a site inspector to periodically inspect the entirety of the site and to report on any degradation to the habitats there. It is recommended that litter, such as containers and cans, plastic bags and glass, are cleared up as those items have potential to cause harm to a variety of animals including GCN.

References

Ecus (2017) Cinderford Northern Quarter – Great Crested Newt Monitoring Survey. A report to Forest of Dean Council. December 2017.

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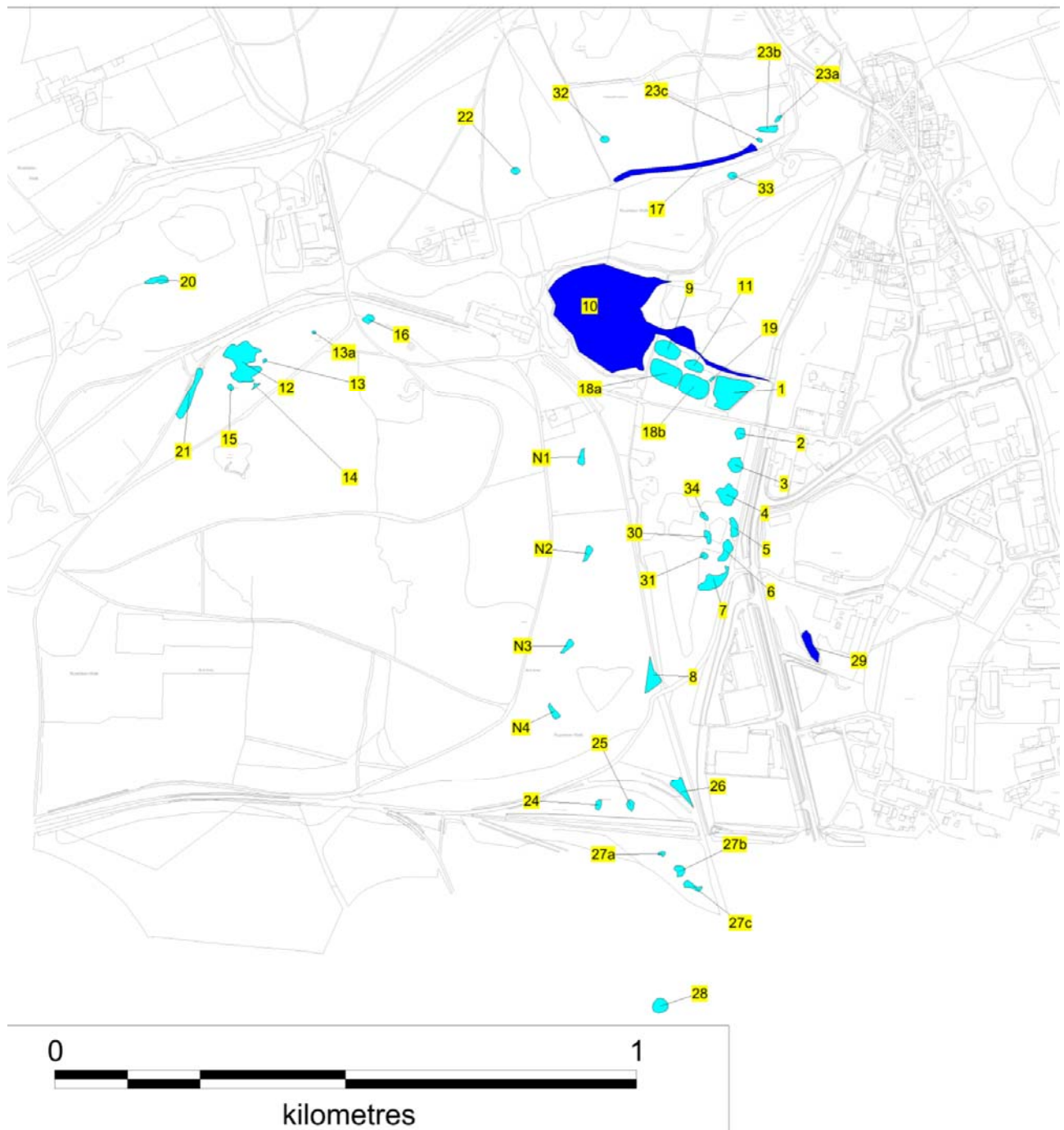
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

Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001) Great Crested Newt Conservation Handbook, Froglife, Halesworth.

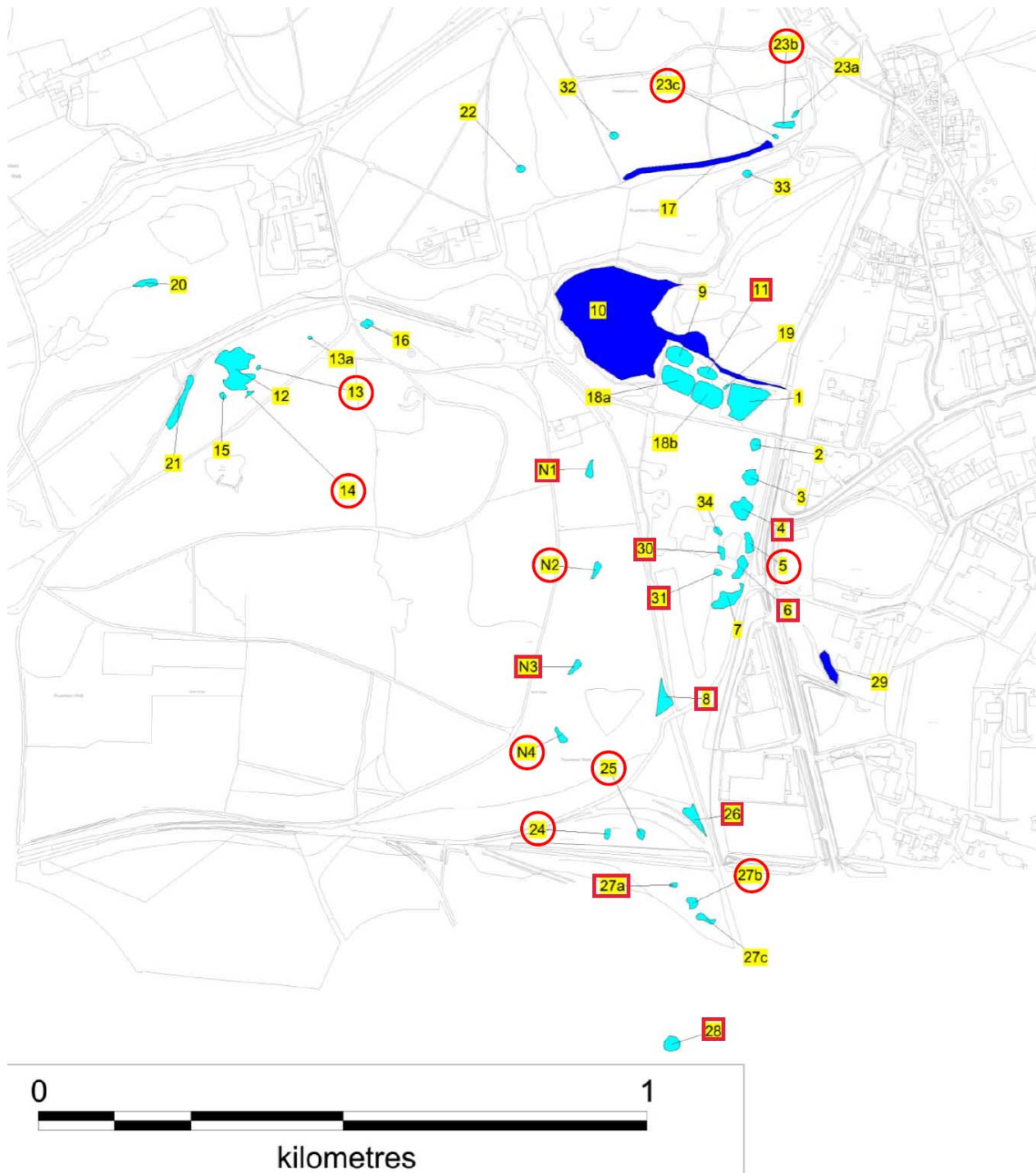
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Figure 1: Pond Location Plan



Legend

-  Ponds to be monitored
-  Ponds not to be monitored



Legend

-  GCN present
-  GCN breeding

Figure 2: Confirmed GCN pond location plan


Appendix 1: Habitat Suitability Index Assessment



H.S.I score	pond suitability
<0.5	poor
0.5-0.59	below average
0.6-0.69	average
0.7-0.79	good
>0.8	excellent


POND	location	pond area	long - evity	water quality	shading	water-fowl	fish presence	nos ponds in 1km	terr habitat present	macro-phyte cover	H.S.I SCORE	Pond suitability
	SI1	SI2	SI3	SI4	SI5	SI6	SI7	SI8	SI9	SI10		
1(19)	1	0.85	0.9	0.67	1	0.67	0.33	1	0.67	0.5	0.72	Good
2	1	0.8	0.9	1	1	0.67	0.33	1	1	0.7	0.80	Excellent
3	1	0.8	0.9	1	0.8	0.67	1	1	1	0.7	0.88	Excellent
4	1	0.6	0.9	1	0.7	0.67	1	1	1	0.3	0.77	Good
5	1	0.1	0.9	1	0.9	0.67	0.33	1	1	0.5	0.62	Average
6	1	0.7	0.9	1	1	0.67	1	1	1	1	0.92	Excellent
7												
8	1	0.92	0.5	1	0.6	0.67	1	1	1	1	0.84	Excellent
9	1	0.2	0.9	1	1	0.67	1	1	0.67	1	0.78	Good
11	1	1	0.9	1	1	0.67	1	1	0.67	0.8	0.89	Excellent
13	1	0.1	0.1	0.67	1	1	1	1	1	0.6	0.58	Below Average
14	1	0.4	0.5	0.67	1	1	1	1	1	0.4	0.75	Good
16	1	0.6	0.9	0.67	1	1	1	1	0.67	0.35	0.78	Good
18a	1	0.85	0.9	0.33	1	0.67	0.33	1	0.33	0.8	0.66	Average
18b	1	0.92	0.9	0.33	1	0.67	0.33	1	0.33	0.3	0.59	Below Average
20	1	0.3	1	0.33	1	1	1	1	0.33	0.4	0.65	Average
21	1	1	0.5	0.67	0.8	1	1	1	1	0.9	0.87	Excellent
23a	1	0.05	1	0.33	1	1	1	1	1	0.3	0.59	Below Average
23b,c	1	0.8	0.9	1	1	0.67	1	1	1	0.7	0.90	Excellent
24	1	0.4	1	0.67	1	0.67	1	1	1	0.8	0.82	Excellent
25	1	0.4	1	1	1	0.67	0.33	1	1	0.8	0.77	Good
26	1	1	0.5	1	1	0.67	1	1	0.67	0.5	0.80	Excellent
27a	1	0.05	0.5	1	1	1	1	1	1	1	0.69	Average
27b	1	0.4	0.5	1	1	0.67	0.33	1	1	1	0.73	Good
27c	1	0.5	0.5	1	1	0.67	0.33	1	1	1	0.75	Good
28	1	0.3	0.1	0.67	0.6	0.67	1	1	1	0.4	0.56	Below Average
30	1	0.1	0.9	0.67	0.6	0.67	1	1	1	0.3	0.61	Average
31	1	0.1	0.9	1	1	1	1	1	1	0.8	0.77	Good
N1	1	0.4	0.9	0.67	1	1	1	1	1	0.4	0.79	Good
N2	1	0.4	0.9	0.67	1	1	1	1	1	0.5	0.81	Excellent
N3	1	0.4	0.9	0.67	1	1	1	1	1	0.4	0.79	Good
N4	1	0.1	0.5	0.67	1	1	1	1	1	0.3	0.63	Average



Appendix 2: Pond Condition and Terrestrial Habitat Assessment (Methodology taken from Ecus Ltd, 2017/2018, as shown below)



All possible combinations of the pond condition criteria outcomes and the corresponding pond condition score				
Pond Condition Score	Pond Condition Criteria			
	Invasive Species	Major Damage	Silt Levels	Dumped Rubbish
Poor	Present	Absent	Low	Present
Poor	Present	Absent	Low	Absent
Poor	Present	Absent	Moderate	Present
Poor	Present	Absent	Moderate	Absent
Poor	Present	Absent	High	Present
Poor	Present	Absent	High	Absent
Poor	Absent	Present	Low	Present
Poor	Absent	Present	Low	Absent
Poor	Absent	Present	Moderate	Present
Poor	Absent	Present	Moderate	Absent
Poor	Absent	Present	High	Present
Poor	Absent	Present	High	Absent
Poor	Present	Present	Low	Present
Poor	Present	Present	Low	Absent
Poor	Present	Present	Moderate	Present
Poor	Present	Present	Moderate	Absent
Poor	Present	Present	High	Present
Poor	Present	Present	High	Absent
Poor	Absent	Absent	High	Present
Fair	Absent	Absent	High	Absent
Fair	Absent	Absent	Moderate	Present
Good	Absent	Absent	Moderate	Absent
Good	Absent	Absent	Low	Present
Excellent	Absent	Absent	Low	Absent


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
1 & 19	<p>Grid reference:</p> <p>Pond 1: SO 64515 15221 Pond 19: SO 64493 15282</p> <p>Pond 1 is a large manmade pond to the northeast of the site, set within a cluster of artificial ponds. Approximately 50m x 60m and >1m deep.</p> <p>Pond 19 is a short channel joined at the NW corner.</p> <p>Surrounding terrestrial habitat is good, although the woodland area along the NE edge has quite a bit of dumped rubbish and litter.</p>		Location	1	<p>Total HSI Score: 0.72</p> <p>Good suitability with fair pond condition</p>
			Pond area	0.85	
			Pond drying	0.9	
			Water quality	0.67	
			Shade	1	
			Fowl	0.67	
			Fish	0.33	
			Pond count	1	
			Terrestrial habitat	0.67	
			Macrophytes	0.5	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
Dumped Rubbish	Present - Some on banks				
2	<p>Grid reference: SO 64535 15182</p> <p>Northern-most pond of the cluster of ponds to the west of Forest Vale Road. Sitting in relatively dense woodland with bulrush, iris, pondweed, and sweet grass present. Sticklebacks present. Excellent terrestrial habitat.</p>		Location	1	<p>Total HSI Score: 0.8</p> <p>Excellent suitability with good pond condition</p>
			Pond area	0.8	
			Pond drying	0.9	
			Water quality	1	
			Shade	1	
			Fowl	0.67	
			Fish	0.33	
			Pond count	1	



Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
			Terrestrial habitat	1	
			Macrophytes	0.7	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
3	Grid reference: SO 64537 15150 Part of the cluster of ponds next to Forest Vale Road, Dense pondweed present, along with bulrush, iris, and water mint. Various sections covering an area approximately 25m x 25m. Excellent terrestrial habitat.		Location	1	Total HSI Score: 0.88 Excellent suitability with good pond condition
			Pond area	0.8	
			Pond drying	0.9	
			Water quality	1	
			Shade	0.8	
			Fowl	0.67	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.7	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
4	Grid reference: SO 64536 15076		Location	1	Total HSI Score: 0.77


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	Pond 4 lies within the cluster west of Forest Vale Road and comprises 2-3 smaller waterbodies that link when water levels are high. Water levels fluctuated throughout the surveys reducing these to much smaller patches at times. Excellent terrestrial habitat.		Pond area	0.6	Good suitability with good pond condition
			Pond drying	0.9	
			Water quality	1	
			Shade	0.7	
			Fowl	0.67	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.3	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
			5	Grid reference: SO 64529 15020 Larger pond to the south of the cluster with a smaller section to the west. Approximately 30m x 5m with the smaller section around 4m x 4m. Some sticklebacks present. Excellent terrestrial habitat.	
Pond area	0.1				
Pond drying	0.9				
Water quality	1				
Shade	0.9				
Fowl	0.67				
Fish	0.33				



Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.5	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
6	<p>Grid reference: SO 64523 14975</p> <p>Pond 6 lies further south past the cluster of 2 – 5. Abundant sweet grass and water mint provide numerous egg laying opportunities. The water is approximately 1m deep, clear and supports a broad range of macrophytes and invertebrate species. The grassland and woodland surrounding the pond provide good terrestrial habitat.</p>		Location	1	<p>Total HSI Score: 0.92</p> <p>Excellent suitability with good pond condition.</p>
			Pond area	0.7	
			Pond drying	0.9	
			Water quality	1	
			Shade	1	
			Fowl	0.67	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	1	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
8	Grid reference: SO 64393 14797		Location	1	Total HSI Score: 0.84


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	A large triangular shaped pond on the corner of two tracks leading through the south-east of the site. various areas of deep and shallow water surround by wooded banks, lying on the SE corner of the clear-cut area. Water levels fluctuated frequently during the survey period. Sweet grass and water mint provide good egg laying opportunities.		Pond area	0.92	Excellent suitability with good pond condition.
			Pond drying	0.5	
			Water quality	1	
			Shade	0.6	
			Fowl	0.67	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	1	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
9	Grid reference: SO 64410 15323 Pond 9 is part of the manmade cluster along with 1/19, 11, 18a&b. Approximately 30m x 30m with patches of bulrush, pondweed and sweet grass. Good terrestrial habitat surrounding pond.		Location	1	Total HSI Score: 0.78
			Pond area	0.2	Good suitability with excellent pond condition.
			Pond drying	0.9	
			Water quality	1	
			Shade	1	
			Fowl	0.67	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	0.67	
			Macrophytes	1	


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Low	
			Dumped Rubbish	Absent	
11	Grid reference: SO 64462 15299 Pond 11 lies to the east of pond 9. Dominated by bulrush with patches of sweet grass to support egg laying. Grassland and woodland provide good terrestrial habitat.		Location	1	Total HSI Score: 0.89 Excellent suitability with good pond condition.
			Pond area	1	
			Pond drying	0.9	
			Water quality	1	
			Shade	1	
			Fowl	0.67	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	0.67	
			Macrophytes	0.8	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
13	Grid reference: SO 63744 15322 A small pond with limited areas of open water, no deeper than 20cm. Some patches of sweet grass		Location	1	Total HSI Score: 0.58 Below average suitability with good pond condition.
			Pond area	0.1	
			Pond drying	0.1	
			Water quality	0.67	
			Shade	1	



Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	present. The surrounding woodland provides excellent terrestrial habitat.		Fowl	1	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.6	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
14	Grid reference: SO 63762 15290 Pond 14 comprises what was presumably a drainage ditch. Minimal aquatic vegetation present with some patches of sweet grass. Surrounding terrestrial habitat is good.		Location	1	Total HSI Score: 0.75 Good suitability with fair pond condition.
			Pond area	0.4	
			Pond drying	0.5	
			Water quality	0.67	
			Shade	1	
			Fowl	1	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.4	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
			Dumped Rubbish	Present – CD player, plastic, glass	
16	<p>Grid reference: SO 63811 15384</p> <p>Pond 16 is approximately 25m x 25m and up to 1.5m deep in places. Situated with woodland and having steep banks. Minimal vegetation present with leaf litter providing the main egg laying opportunities. Wild boar noted on the eastern bank on more than one occasion.</p>		<p>Location</p> <p>Pond area</p> <p>Pond drying</p> <p>Water quality</p> <p>Shade</p> <p>Fowl</p> <p>Fish</p> <p>Pond count</p> <p>Terrestrial habitat</p> <p>Macrophytes</p> <p>Invasive species</p> <p>Major damage</p> <p>Silt levels</p> <p>Dumped Rubbish</p>	<p>1</p> <p>0.6</p> <p>0.9</p> <p>0.67</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>0.67</p> <p>0.35</p> <p>Absent</p> <p>Absent</p> <p>Moderate</p> <p>Absent</p>	<p>Total HSI Score: 0.78</p> <p>Good suitability with good pond condition.</p>
18a	<p>Grid reference: SO 64475 15247</p> <p>Large manmade pond approximately 30m x 30m and up to 1m deep. Large crucian carp noted during surveys, waterfowl present during each survey. Minimal submerged vegetation, expect for large patches in the deepest parts towards the centre, limiting spawning potential.</p>		<p>Location</p> <p>Pond area</p> <p>Pond drying</p> <p>Water quality</p> <p>Shade</p> <p>Fowl</p> <p>Fish</p>	<p>1</p> <p>0.85</p> <p>0.9</p> <p>0.33</p> <p>1</p> <p>0.67</p> <p>0.33</p>	<p>Total HSI Score: 0.66</p> <p>Average suitability with poor pond condition.</p>


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	<p>Water flowed between 18a & b when water levels were slightly higher.</p> <p>A pair of Canada geese frequently visited the pond during the 2019 surveys.</p>		Pond count	1	
			Terrestrial habitat	0.33	
			Macrophytes	0.8	
			Invasive species	Absent	
			Major damage	Present – banks heavily poached by wild boar, especially on southern bank.	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
18b	<p>Grid reference: SO 64475 15247</p> <p>Immediately adjacent to pond 18a, and of similar size and condition. No fish noted but likely present given the connection between the ponds.</p> <p>Ponds 18a & b are adjacent to a large angling lake (Pond 10). This might explain the presence of large carp in pond 18a.</p>		Location	1	<p>Total HSI Score: 0.59</p> <p>Below average suitability with poor pond condition.</p>
			Pond area	0.92	
			Pond drying	0.9	
			Water quality	0.33	
			Shade	1	
			Fowl	0.67	
			Fish	0.33	
			Pond count	1	
			Terrestrial habitat	0.33	
			Macrophytes	0.3	
			Invasive species	Absent	
			Major damage	Present – banks heavily poached by wild boar, especially on southern bank.	


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
			Silt levels	Moderate	
			Dumped Rubbish	Present – old cash box, plastic	
20	<p>Grid reference: SO 63543 15446</p> <p>Pond 20 lies in an open depression within the dense woodland to the north of pond 21. Previous reports (2018) state that this pond had been created on a restored opencast site and holds acidic water.</p> <p>The pond is approximately 30m x 10m and no more than 50cm at its deepest point. The shallow margins were dominated by soft rush, with some patches of other vegetation typical of acid waters. The habitat surrounding the pond is bare grey mud heavily poached by boar and deer, with patches of sparse and dense woodland beyond.</p>		Location	1	<p>Total HSI Score: 0.65</p> <p>Average suitability with good pond condition.</p>
			Pond area	0.3	
			Pond drying	1	
			Water quality	0.33	
			Shade	1	
			Fowl	1	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	0.33	
			Macrophytes	0.4	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
21	<p>Grid reference: SO 63594 15248</p> <p>A long pond with limited vegetation in the northern end, but full of pond weed and sweet grass towards the southern end, separated by a</p>		Location	1	<p>Total HSI Score: 0.87</p> <p>Excellent suitability with good pond condition.</p>
			Pond area	1	
			Pond drying	0.5	
			Water quality	0.67	
			Shade	0.8	



Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	<p>shallow section of thick mud/silt. Access to the southern section was unsafe due to dense vegetation along the bank and as such, surveys focussed on the northern end.</p> <p>Water levels in this pond fluctuated greatly across the survey period with it being between 0.5 – 0.75cm and 10 – 15 cm deep (northern section) at various times.</p>		Fowl	1	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.9	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
23a	<p>Grid reference: SO 64630 15702</p> <p>In previous years ponds 23a,b & c have fluctuated greatly comprising either 2-3 separate ponds or a single large waterbody. Pond 23a was a separate pond comprising a small depression, presumably a remnant of historic mining operations in the area.</p> <p>The pond was approximately 10 – 12m in diameter with little vegetation</p>		Location	1	<p>Total HSI Score: 0.59</p> <p>Below average suitability with good pond condition.</p>
Pond area	0.05				
Pond drying	1				
Water quality	0.33				
Shade	1				
Fowl	1				
Fish	1				
Pond count	1				


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	present. Leaf litter provides some spawning opportunities.		Terrestrial habitat	1	
			Macrophytes	0.3	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
23b, c	<p>Grid reference: SO 64630 15702</p> <p>Ponds 23 b & c form a large waterbody which connects with a large linear pond feature to the south-west and is assumed to be pond 17 although this isn't clear.</p> <p>Water quality is good and there are patches of aquatic vegetation around the perimeter of the pond. The presence of trees emerging from far into the main body of the pond supports the notion that water levels can change dramatically.</p> <p>When water levels were higher earlier in the season, the pond flowed out across the adjacent path and into a nearby brook.</p>		Location	1	<p>Total HSI Score: 0.90</p> <p>Excellent suitability with good pond condition.</p>
			Pond area	0.8	
			Pond drying	0.9	
			Water quality	1	
			Shade	1	
			Fowl	0.67	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.7	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	



Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	Ducks and geese were noted during each survey but signs of damage were minimal.		Dumped Rubbish	Absent	
24	<p>Grid reference: SO 64298 14549</p> <p>Pond 24 is a rectangular excavated pond within Laymoor Quag reserve. It is approximately 30m x 10m and up to 1m deep in places. The pond is dominated by pondweed with few areas of open water. The surrounding tussocky grassland provides good terrestrial habitat.</p>		Location	1	<p>Total HSI Score: 0.82</p> <p>Excellent suitability with good pond condition.</p>
			Pond area	0.4	
			Pond drying	1	
			Water quality	0.67	
			Shade	1	
			Fowl	0.67	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.8	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
25	<p>Grid reference: SO 64357 14548</p> <p>Similar to pond 24, pond 25 is a rectangular excavation within Laymoor Quag. It is approximately 30m x 10m and up to 1m deep in places. The pond is dominated by pondweed with larger areas of open water than 24. The</p>		Location	1	<p>Total HSI Score: 0.77</p> <p>Good suitability with good pond condition.</p>
			Pond area	0.4	
			Pond drying	1	
			Water quality	1	
			Shade	1	
			Fowl	0.67	


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	surrounding tussocky grassland provides good terrestrial habitat.		Fish	0.33	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.8	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
26	Grid reference: SO 64457 14548 Pond 26 lies immediately next to the path running along the eastern edge of Laymoor Quag. The triangular pond has a more open narrower section to the south, with more dense beds of sweet grass and pondweed to the north, providing excellent egg laying opportunities. The pond is no more than 1m at it's deepest point and the surrounding tussocky grassland and dense scrub provides good terrestrial habitat.		Location	1	Total HSI Score: 0.80 Excellent suitability with excellent pond condition.
		Pond area	1		
		Pond drying	0.5		
		Water quality	1		
		Shade	1		
		Fowl	0.67		
		Fish	1		
		Pond count	1		
		Terrestrial habitat	0.67		
		Macrophytes	0.5		



Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Low	
			Dumped Rubbish	Absent	
27a	<p>Grid reference: SO 64412 14465</p> <p>Pond 27a is the northern most of a cluster of three south of Laymoor Quag. The pond was approximately 5m x 5m having reduced in size significantly from previous years. Tussocky grass and patches of dense scrub provide good terrestrial habitat.</p>		Location	1	<p>Total HSI Score: 0.69</p> <p>Average suitability with good pond condition.</p>
		Pond area	0.05		
		Pond drying	0.5		
		Water quality	1		
		Shade	1		
		Fowl	1		
		Fish	1		
		Pond count	1		
		Terrestrial habitat	1		


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
			Macrophytes	1	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
27b	<p>Grid reference: SO 64439 14438</p> <p>Pond 27b lies just to the south of 27a and is approximately 30m x 30m, and up to around 50cm deep. Water mint and pondweed provide good egg laying opportunities in the margins with small patches of bulrush and sweet grass also present. Tussocky grass and patches of dense scrub provide good terrestrial habitat. A large trunk of deadwood was present in the shallows.</p>		Location	1	<p>Total HSI Score: 0.73</p> <p>Good suitability with good pond condition.</p>
			Pond area	0.4	
			Pond drying	0.5	
			Water quality	1	
			Shade	1	
			Fowl	0.67	
			Fish	0.33	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	1	
			Invasive species	Absent	
			Major damage	Absent	


Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
27c	<p>Grid reference: SO 64462 14409</p> <p>The last in the three pond of this cluster, pond 27c has a more irregular shape with the bankside vegetation more dense than 27a & b. Bulrush dominated the centre of the pond with water being no more than 75cm deep. Water mint, sweet grass and pondweed were also present. Tussocky grass and patches of dense scrub provide good terrestrial habitat.</p> <p>A large eel, approximately 30 – 40 cm, was noted during one of the surveys.</p>		Location	1	<p>Total HSI Score: 0.75</p> <p>Good suitability with good pond condition.</p>
			Pond area	0.5	
			Pond drying	0.5	
			Water quality	1	
			Shade	1	
			Fowl	0.67	
			Fish	0.33	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	1	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
28	<p>Grid reference: SO 64457 14205</p> <p>Pond 28 lies to the south of ponds 27a-c and comprises a 15m x 10m depression on the edge of the woodland, with a large section of tree hanging over much of it. Vegetation was sparse with only a few small patches of sweet grass and soft rush present. /terrestrial habitat</p>		Location	1	<p>Total HSI Score: 0.56</p> <p>Below average suitability with excellent pond condition.</p>
			Pond area	0.3	
			Pond drying	0.1	
			Water quality	0.67	
			Shade	0.6	
			Fowl	0.67	
			Fish	1	

Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	was excellent with tussocky grass to the east and dense woodland to the west.		Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.4	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Low	
			Dumped Rubbish	Absent	
30	Grid reference: SO 64496 15041 Pond 30 is a small shaded pond just inside the wooded area west of Forest Vale Road. Approximately 15m x 5m and at most 50cm deep, with little aquatic vegetation present. Leaf litter provides the only useful spawning media. The surrounding woodland and grassland beyond provide excellent terrestrial habitat.		Location	1	Total HSI Score: 0.61 Average suitability with good pond condition.
			Pond area	0.1	
			Pond drying	0.9	
			Water quality	0.67	
			Shade	0.6	
			Fowl	0.67	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.3	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	

Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
			Dumped Rubbish	Absent	
31	<p>Grid reference: SO 64478 14996</p> <p>Pond 31 is a small open body of water surrounded by tussocky grassland, just to the west of pond 6. Approximately 10m x 10m and up to 1m deep in places. Dominated by pondweed and sweet grass with only a few areas of open water. Excellent terrestrial habitat surrounding the pond.</p>		Location	1	<p>Total HSI Score: 0.77</p> <p>Good suitability with excellent pond condition.</p>
			Pond area	0.1	
			Pond drying	0.9	
			Water quality	1	
			Shade	1	
			Fowl	1	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.8	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Low	
			Dumped Rubbish	Absent	
N1	<p>Grid reference: SO 64279 15152</p> <p>One of four manmade ponds sitting within the grassland to the east of the main woodland, in an area that was previously felled. Soft rush, pondweed and sweet grass are present in pond N1 providing good egg laying opportunities. The surrounding terrestrial habitat comprises tussocky grass, bracken</p>		Location	1	<p>Total HSI Score: 0.79</p> <p>Good suitability with excellent pond condition.</p>
			Pond area	0.4	
			Pond drying	0.9	
			Water quality	0.67	
			Shade	1	
			Fowl	1	
			Fish	1	
			Pond count	1	

Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	and wood piles providing excellent refugia features.		Terrestrial habitat	1	
			Macrophytes	0.4	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
N2	Grid reference: SO 64291 15022 One of the four manmade ponds sitting within the grassland to the east of the main woodland, in an area that was previously felled. Soft rush, pondweed and sweet grass are present in pond N2 providing good egg laying opportunities. The surrounding terrestrial habitat comprises tussocky grass, bracken and wood piles providing excellent refugia features		Location	1	Total HSI Score: 0.81 Excellent suitability with good pond condition.
			Pond area	0.4	
			Pond drying	0.9	
			Water quality	0.67	
			Shade	1	
			Fowl	1	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.5	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
N3	Grid reference: SO 64279 14912		Location	1	Total HSI Score: 0.79

Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	One of the four manmade ponds sitting within the grassland to the east of the main woodland, in an area that was previously felled. Some patches of soft rush, pondweed and sweet grass are present in pond N3 providing some egg laying opportunities. The surrounding terrestrial habitat comprises tussocky grass, bracken and wood piles providing excellent refugia features		Pond area	0.4	Good suitability with good pond condition.
			Pond drying	0.9	
			Water quality	0.67	
			Shade	1	
			Fowl	1	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.4	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	
N4	Grid reference: SO 64245 14723 One of the four manmade ponds sitting within the grassland to the		Location	1	Total HSI Score: 0.63
			Pond area	0.1	Average suitability and good pond condition.
			Pond drying	0.5	
			Water quality	0.67	

Pond Number	Pond Description	Photo	Pond Condition Assessment Criteria	Score per Index	Total HSI score and overall pond condition score
	<p>east of the main woodland, in an area that was previously felled.</p> <p>The pond was around 10m x 5m and no more than 25cm at its deepest point, with a slight increase in size as the surveys went on. Only a few small patches of soft rush and very little other vegetation present. Beyond the almost bare banks of pond N4 the surrounding terrestrial habitat comprises tussocky grass, bracken and wood piles</p>		Shade	1	
			Fowl	1	
			Fish	1	
			Pond count	1	
			Terrestrial habitat	1	
			Macrophytes	0.3	
			Invasive species	Absent	
			Major damage	Absent	
			Silt levels	Moderate	
			Dumped Rubbish	Absent	

Appendix 3: Full GCN Population Size Class Estimate

VISIT ONE														
Pond no.	Date	Air temp °C		Rain	Vegetation Cover (0-5)	Turbidity	No. of traps	GCN - Peak Count					Eggs found?	Notes
		Max	Min					Bottle traps		Torching				
								Male	Female	Male	Female	Unknown		
1	17/4/19	13	7	0	2	1	10	0	0	0	0	0	No	Tadpoles
2	17/4/19	13	7	0	2	2	15	0	0	0	0	0	No	
3	17/4/19	13	7	0	3	2	30	0	0	0	0	0	No	
4	17/4/19	13	7	0	2	0	15	0	0	4	0	0	No	
5	17/4/19	13	7	0	1	1	30	1	0	1	0	0	No	
6	17/4/19	13	7	0	2	0	25	0	0	2	0	0	Yes	
7	DRY													
8	17/4/19	13	7	0	1	1	50	2	1	14	3	0	No	Smooth and palmate newts present
9	17/4/19	13	7	0	3	0	20	0	0	0	0	0	No	Tadpoles
10	DOES NOT REQUIRE MONITORING													
11	17/4/19	13	7	0	4	1	20	0	0	2	1	0	Yes	Smooth and palmate newts present
12	Stocked fishing lake													
13	16/4/19	12	7	0	0	0	15	0	0	0	0	0	No	
13a	DRY													
14	16/4/19	12	7	0	2	1	15	0	0	0	0	0	No	
15	ALMOST DRY													
16	16/4/19	12	7	0	0	1	15	0	0	0	0	0	No	Boar on far bank
17	NOW PART OF LARGER WATERBODY THAT INCLUDES 23b & 23c													
18 a	17/4/19	13	7	0	1	1	30	0	0	0	0	0	No	Tadpoles. Large fish seen.
18 b	17/4/19	13	7	0	1	1	30	0	0	0	0	0	No	Tadpoles
19	NOW PART OF POND 1													
20	16/4/19	12	7	0	1	1	20	0	0	0	0	0	No	
21	16/4/19	12	7	0	2	1	30	0	0	4	0	0	No	

NOT FOUND, PRESUMED DRY														
22														
23 a	17/4/19	12	7	0	0	3	5	0	0	0	0	0	No	Pond lies close to 23 b, c & 17 but seperated by 5m
23 b,c	17/4/19	12	7	0	2	1	20	0	1	2	3	0	No	
24	16/4/19	12	7	0	5	3	15	1	0	0	0	0	No	Small newt seen torching
25	16/4/19	12	7	0	2	2	20	0	0	0	0	0	No	Smooth and palmate newts present
26	16/4/19	12	7	0	3	1	35	1	2	1	3	0	No	37 smooth newts seen torching
27a	16/4/19	12	7	0	4	2	5	0	1	0	0	0	No	Small newt seen torching
27b	16/4/19	12	7	0	1	2	20	0	0	0	0	0	No	Smooth and palmate newts present
27c	16/4/19	12	7	0	2	2	20	0	0	0	0	0	No	Small newt eggs
28	16/4/19	12	7	0	1	2	15	0	0	0	0	0	Yes	Smooth and palmate newts present
29	NOT FOUND, PRESUMED DRY													
30	16/4/19	12	7	0	1	2	10	0	0	0	0	0	No	
31	16/4/19	12	7	0	3	2	15	0	0	2	0	0	Yes	
32	NOT FOUND, PRESUMED DRY													
33	NOT FOUND, PRESUMED DRY													
34	NOT FOUND, PRESUMED DRY													
N1	17/4/19	13	7	0	1	3	25	1	1	8	1	0	No	Dead GCN found during torching
N2	17/4/19	13	7	0	1	4	30	0	2	1	0	0	No	Smooth and palmate newts present
N3	17/4/19	13	7	0	1	2	30	0	2	0	1	3	Yes	
N4	17/4/19	13	7	0	2	1	10	0	0	2	1	0	No	

VISIT TWO

VISIT TWO														
Pond no.	Date	Air temp °C		Rain	Vegetation Cover (0-5)	Turbidity	No. of traps	GCN - Peak Count					Eggs found?	Notes
		Max	Min					Bottle traps		Torching				
								Male	Female	Male	Female	Unknown		
1	23/4/19	18	8	1	2	1	10	0	0	0	0	0	No	Tadpoles
2	24/4/19	16	6	0	3	2	15	0	0	0	0	0	No	
3	24/4/19	16	6	0	3	2	30	0	0	0	0	0	No	
4	24/4/19	16	6	0	2	1	15	2	4	1	2	0	Yes	
5	24/4/19	16	6	0	1	1	30	1	0	1	0	0	No	
6	24/4/19	16	6	0	3	1	30	7	9	11	4	0		GCN eggs already found
7	Dry													
8	25/4/19	12	7	0	1	2	50	5	13	4	0	1	No	Smooth and palmate present. One gravid female GCN.
9	23/4/19	18	8	1	3	0	20	0	0	0	0	0	No	Tadpoles
10	DOES NOT REQUIRE MONITORING													
11	23/4/19	18	8	1	4	1	20	0	0	0	0	0		GCN eggs already found. Smooth and palmate present. Tadpoles.
12						1								Stocked fishing lake - Alternative method agreed with client
13	25/4/19	12	7	0	2	1	10	0	0	0	0	0	No	Water level dropped
13a	0													
14	25/4/19	12	7	0	2	1	15	0	0	0	0	0	No	
15	ALMOST DRY													
16	25/4/19	12	7	0	0	1	15	0	0	0	0	0	No	Boar on far bank

17	NOW PART OF LARGER WATERBODY THAT INCLUDES 23b & 23c													
18 a	23/4/19	18	8	1	1	3	30	0	0	0	0	0	No	Tadpoles. Large fish seen.
18 b	23/4/19	18	8	1	1	3	30	0	0	0	0	0	No	Tadpoles. Small newts seen.
19	NOW PART OF POND 1													
20	25/4/19	12	7	0	2	1	20	0	0	0	0	0	No	
21	25/4/19	12	7	0	2	3	30	0	0	0	1	0	No	Water level dropped by half since first survey
22	NOT FOUND, PRESUMED DRY													
23 a	23/4/19	18	8	0	1	3	5	0	0	0	0	0	No	
23 b,c	23/4/19	18	8	0	2	1	50	0	0	2	4	0	No	
24	29/4/19	12	6	0	5	4	15	0	1	0	0	0	No	Limited open water. Small newt seen
25	29/4/19	12	6	0	3	3	20	0	0	0	0	0	No	
26	20/4/19	12	6	0	3	0	35	1	0	3	0	0	Yes	GCN eggs already found
27a	29/4/19	12	6	0	4	2	5	0	0	0	0	0	No	
27b	29/4/19	12	6	0	2	2	20	0	0	0	0	0	No	
27c	29/4/19	12	6	0	2	0	20	0	0	0	0	0	No	
28	29/4/19	12	6	0	3	1	15	0	2	0	0	0		GCN eggs already found
29	NOT FOUND, PRESUMED DRY													
30	24/4/19	16	6	0	2	1	10	1	2	1	0	0	Yes	GCN female gravid
31	24/4/19	16	6	0	3	2	15	0	0	2	0	0		GCN eggs already found
32	NOT FOUND, PRESUMED DRY													
33	NOT FOUND, PRESUMED DRY													
34	NOT FOUND, PRESUMED DRY													
N1	25/4/19	12	7	0	1	1	25	5	0	0	2	1	Yes	
N2	25/4/19	12	7	0	1	4	30	0	1	0	0	0	No	
N3	25/4/19	12	7	0	1	3	30	0	2	7	2	4		GCN eggs already found
N4	25/4/19	12	7	0	2	3	10	0	0	0	1	0	No	

VISIT THREE

VISIT THREE														
Pond no.	Date	Air temp °C		Rain	Vegetation Cover (0-5)	Turbidity	No. of traps	GCN - Peak Count					Eggs found?	Notes
		Max	Min					Bottle traps		Torching				
								Male	Female	Male	Female	Unknown		
1	30/4/19	14	8	0	2	1	10	0	0	0	0	0	No	Tadpoles
2	1/5/19	14	8	0	2	2	15	0	0	0	0	0	No	Palmate newts
3	1/5/19	14	8	0	3	2	30	0	0	0	0	0	No	Smooth and palmate newts
4	1/5/19	14	8	0	3	1	15	1	0	1	0	0		Palmate newts. GCN eggs already found
5	1/5/19	14	8	0	1	1	30	0	0	0	0	1	No	
6	1/5/19	14	8	0	3	0	30	14	15	17	9	0		Smooth and palmate newts present. GCN eggs already found
7														Dry
8	30/4/19	14	8	0	1	2	50	5	9	2	2	0	Yes	
9	30/4/19	14	8	0	3	0	20	0	0	0	0	0	No	
10	DOES NOT REQUIRE MONITORING													
11	30/4/19	14	8	0	4	1	20	2	1	2	0	0		GCN eggs already found
12														Stocked fishing lake
13	1/5/19	14	8	0	3	2	5	0	0	0	0	0	No	Water levels dropped lower
13a	DRY													
14	1/5/19	14	8	0	2	1	15	0	0	0	0	0	No	
15	ALMOST DRY													
16	1/5/19	14	8	0	0	1	15	0	0	0	0	0	No	Boar on far bank
17	NOW PART OF LARGER WATERBODY THAT INCLUDES 23b & 23c													
18 a	30/4/19	14	8	0	2	2	30	0	0	0	0	0	No	

18 b	30/4/19	14	8	0	2	2	30	0	0	0	0	0	No	
19	NOW PART OF POND 1													
20	1/5/19	14	8	0	2	1	20	0	0	0	0	0	No	
21	1/5/19	14	8	0	3	3	10	0	0	0	0	0	No	Water level very low
22	Not found, presumed dry													
23 a	30/4/19	14	8	0	1	3	5	0	0	0	0	0	No	
23 b,c	30/4/19	14	8	0	2	1	50	1	0	3	2	0	No	
24	2/5/19	9	5	0	5		15	0	0				No	No open water for torching
25	2/5/15	9	5	0	4	3	20	0	0	0	0	0	No	Smooth and palmate present
26	2/5/19	9	5	0	3	0	35	4	2	6	3	0		GCN eggs already found. Gravid GCN found
27a	2/5/19	9	5	0	4	3	5	0	0	0	0	0	Yes	Palmate newts found in traps
27b	2/5/19	9	5	0	2	1	20	2	0	0	0	0	No	Palmate newts present
27c	2/5/19	9	5	0	2	0	20	0	0	0	0	0	No	Palmate newts present
28	2/5/19	9	5	0	3	0	15	1	0	0	0	0		GCN eggs already present. Small newts present
29	NOT FOUND, PRESUMED DRY													
30	1/5/19	14	8	0	1	1	10	1	1	1	0	0	No	Smooth and palmate present. GCN already found
31	1/5/19	14	8	0	3	1	15	2	2	3	0	0		GCN eggs already found
32	NOT FOUND, PRESUMED DRY													
33	NOT FOUND, PRESUMED DRY													
34	NOT FOUND, PRESUMED DRY													
N1	30/4/19	14	8	0	2	3	30	0	0	3	5	3		GCN eggs already found. Smooth and palmate present
N2	30/4/19	14	8	0	1	4	30	0	0	0	1	2	No	Smooth and palmate present

N3	30/4/19	14	8	0	1	2	30	0	4	7	1	0		GCN eggs already found. Gravid GCN found
N4	30/4/19	14	8	0	2	4	10	0	0	0	0	0	No	Palmate newts present

VISIT FOUR

VISIT FOUR														
Pond no.	Date	Air temp °C		Rain	Vegetation Cover (0-5)	Turbidity	No. of traps	GCN - Peak Count					Eggs found?	Notes
		Max	Min					Bottle traps		Torching				
								Male	Female	Male	Female	Unknown		
1	15/5/19	13	3	0	2	1	10	0	0	0	0	0	No	
2	13/5/19	14	11	0	2	1	15	0	0	0	0	0	No	
3	13/5/19	14	11	0	2	1	30	0	0	0	0	0	No	
4	13/5/19	14	11	0	2	1	15	6	0	0	0	0		GCN eggs already found
5	13/5/19	14	11	0	2	1	30	2	0	0	0	0	No	
6	13/5/19	14	11	0	3	2	25	2	6	1	1	1		GCN eggs already found - one gravid female GCN
7														Dry
8	8/5/19	9	8	1	1	1	50	17	7	14	10	3		GCN eggs already found
9	15/5/19	14	11	0	3	1	20	0	0	0	0	0	No	
10	DOES NOT REQUIRE MONITORING													
11	15/5/19	14	11	0	4	1	20	0	0	0	0	0		GCN eggs already found
12														Stocked fishing lake
13	14/5/19	16	14	0	3	2	15	1	0	0	0	0	No	Increase in water levels
13a	DRY													
14	14/5/19	16	14	0	2	1	15	0	0	0	0	0	No	
15	ALMOST DRY													
16	14/5/19	16	14	0	0	1	15	0	0	0	0	0	No	

17	NOW PART OF LARGER WATERBODY THAT INCLUDES 23b & 23c													
18 a	15/5/19	15	11	0	2	2	30	0	0	0	0	0	No	Large fish seen.
18 b	15/5/19	15	11	0	2	2	30	0	0	0	0	0	No	Tadpoles. Large fish seen.
19	NOW PART OF POND 1													
20	14/5/19	16	4	0	3	1	20	0	0	0	0	0	No	
21	14/5/19	16	14	0	3	4	15	0	0	0	0	0	No	Water level very low
22	Not found, presumed dry													
23 a	15/5/19	17	11	0	4	4	5	0	0	0	0	0	No	
23 b,c	15/5/19	17	11	0	4	1	50	0	0	1	0	0	No	
24	14/5/19	16	6	0	5		15	1	1				No	No open water for torching
25	14/5/19	16	6	0	4	3	20	0	1	0	0	0	No	Smooth and palmate newts present
26	14/5/19	16	6	0	3	1	35	1	0	8	1	0		GCN eggs already found
27a	14/5/19	16	6	0	4	3	5	0	0	0	0	0	Yes	
27b	14/5/19	16	6	0	2	2	20	2	0	0	0	0	No	Smooth and palmate newts present
27c	14/5/19	16	6	0	3	2	20	0	0	0	0	0	No	European Eel present
28	14/5/19	16	6	0	3	0	15	0	0	0	1	0		GCN eggs already found
29	NOT FOUND, PRESUMED DRY													
30	13/5/19	14	11	0	1	1	10	0	0	0	0	0	No	GCN eggs already found
31	13/5/19	14	11	0	2	2	15	2	3	0	0	0		GCN eggs already found. One GCN gravid female present
32	NOT FOUND, PRESUMED DRY													
33	NOT FOUND, PRESUMED DRY													
34	NOT FOUND, PRESUMED DRY													
N1	8/5/19	9	8	1	2	3	30	2	1	1	0	0		GCN eggs already found. Smooth and palmate present.
N2	8/5/19	9	8	1	1	3	30	2	1	0	0	1	No	Smooth and palmate newts present

N3	8/5/19	9	8	1	1	2	30	6	3	18	7	3		GCN eggs already found. One GCN gravid female present
N4	8/5/19	9	8	1	2	4	10	0	0	0	1	0	No	Smooth newts present

VISIT FIVE

VISIT FIVE														
Pond no.	Date	Air temp °C		Rain	Vegetation Cover (0-5)	Turbidity	No. of traps	GCN - Peak Count					Eggs found?	Notes
		Max	Min					Bottle traps		Torching				
								Male	Female	Male	Female	Unknown		
1	20/5/19	13	13	0	2	1	10	0	0	0	0	0	No	
2	30/5/19	17	17	0	2	2	15	0	0	0	0	0	No	
3	30/5/19	17	17	0	3	3	30	0	0	0	0	0	No	Pollen covering pond making torching difficult
4	30/5/19	17	17	0	3	2	15	3	1	0	1	0		GCN eggs already found
5	30/5/19	17	7	0	2	2	30	0	0	1	0	0	No	
6	30/5/19	17	17	0	4	1	25	9	8	3	2	1		GCN eggs already found
7														Dry
8	22/5/19	16	14	0	3	2	50	1	6	2	1	0		Water levels dropped. GCN eggs already present.
9	20/5/19	13	13	0	3	1	20	0	0	0	0	0	No	
10	DOES NOT REQUIRE MONITORING													
11	20/5/19	13	13	0	4	1	20	2	0	0	0	0		GCN eggs already found
12														Stocked fishing lake
13	21/5/19	16	13	0	4	2	15	0	0	0	0	0	No	30 + smooth newts
13a	DRY													
14	21/5/19	16	13	0	2	1	15	0	1	0	0	0	No	40+ smooth newts

15	ALMOST DRY													
16	21/5/19	16	13	0	0	1	15	0	0	0	0	0	No	
17	NOW PART OF LARGER WATERBODY THAT INCLUDES 23b & 23c													
18 a	20/5/19	13	3	0	2	2	30	0	0	0	0	0	No	Tadpoles
18 b	20/5/19	13	3	0	2	2	30	0	0	0	0	0	No	Tadpoles
19	NOW PART OF POND 1													
20	21/5/19	15	3	0	3	1	20	0	0	0	0	0	No	
21	21/5/19	15	3	0	3	4	6	1	1	1	1	0	No	10 smooth newts
22	Not found, presumed dry													
23 a	20/5/19	14	3	0	2	4	4	0	0	0	0	0	No	
23 b,c	20/5/19	14	3	0	2	1	50	0	0	1	0	0	No	
24	29/5/19	15	14	0	5		15	0	0				No	No open water for torching
25	29/5/19	15	14	0	4	3	20	0	0	0	0	0	No	Palmate newts present
26	29/5/19	15	14	0	3	2	35	3	1	1	0	0		GCN eggs already found & larvae present. Smooth and palmate present
27a	29/5/19	15	14	0	4	3	5	0	0	0	0	0		GCN eggs already found - larvae present
27b	29/5/19	15	14	0	2	3	20	0	0	0	0	0	No	
27c	29/5/19	15	14	0	3	3	20	0	0	0	0	0	No	
28	29/5/19	15	14	0	4	0	15	0	1	0	0	0		GCN eggs already found. Gravid GCN present in traps
29	NOT FOUND, PRESUMED DRY													
30	30/5/19	17	15	0	1	3	10	0	0	1	0	0	No	GCN eggs already found
31	30/5/19	17	15	0	3	2	15	1	6	1	0	0		GCN eggs already found
32	NOT FOUND, PRESUMED DRY													
33	NOT FOUND, PRESUMED DRY													
34	NOT FOUND, PRESUMED DRY													
N1	22/5/19	14	14	0	3	2	30	0	3	1	1	0		GCN eggs already found

N2	22/5/19	14	14	0	1	4	30	0	4	0	0	1	No	
N3	22/5/19	14	14	0	2	2	30	1	3	4	3	0		GCN eggs already found
N4	22/5/19	14	14	0	1	4	10	0	0	1	1	1	No	

VISIT SIX

VISIT SIX														
Pond no.	Date	Air temp °C		Rain	Vegetation Cover (0-5)	Turbidity	No. of traps	GCN - Peak Count					Eggs found?	Notes
		Max	Min					Bottle traps		Torching				
								Male	Female	Male	Female	Unknown		
1	11/6/19	8	6	2	2	1	10	0	0	0	0	0	No	
2	4/6/19	14	10	1	2	2	15	0	0	0	0	0	No	
3	4/6/19	14	10	1	4	4	15	0	0	0	0	0	No	Pollen covering pond making torching difficult
4	4/6/19	14	10	1	3	2	15	1	0	2	0	0		GCN eggs already found
5	4/6/19	14	10	1	2	1	30	0	0	0	0	0	No	
6	4/6/19	14	10	1	4	0	18	3	2	15	16	0		GCN eggs already found
7														Dry
8	4/6/19	14	10	1	2	2	50	4	0	4	1	0		GCN eggs already found
9	11/6/19	8	6	2	3	2	20	0	0	0	0	0	No	
10	DOES NOT REQUIRE MONITORING													
11	11/6/19	8	6	2	4	1	20	0	0	0	1	0		GCN eggs already found
12	Stocked fishing lake													
13	5/6/19	13	12	0	4	1	1	0	0	0	0	0	No	90% of water gone
13a	DRY													
14	5/6/19	13	12	0	4	1	10	0	0	0	0	0	No	
15	ALMOST DRY													
16	5/6/19	13	12	0	0	1	15	0	0	0	0	0	No	
17	NOW PART OF LARGER WATERBODY THAT INCLUDES 23b & 23c													

18 a	11/6/19	8	6	2	2	2	30	0	0	0	0	0	No	
18 b	11/6/19	8	6	2	2	2	30	0	0	0	0	0	No	
19	NOW PART OF POND 1													
20	5/6/19	13	12	0	4	1	20	0	0	0	0	0	No	
21	5/6/19	13	12	0	4	1	10	4	2	0	0	0	No	Slight increase in water, also less turbid
22	NOT FOUND, PRESUMED DRY													
23 a	11/6/19	8	6	2	1	3	5	0	0	0	0	0	No	
23 b,c	11/6/19	8	6	2	2	1	50	0	0	0	0	0	No	Water flowing over southern bank down path
24	5/6/19	13	12	0	5	3	15	0	0	0	0	0	No	
25	5/6/19	13	12	0	4	3	20	0	0	0	0	0	No	Palmate newts present
26	5/6/19	13	12	0	3	3	20	0	3	0	0	0		GCN eggs already found
27a	5/6/19	13	12	0	4	3	5	0	0	0	0	0		GCN eggs already found
27b	5/6/19	13	12	0	2	3	20	2	5	0	0	0	No	One juvenile male GCN in traps (inc. in count)
27c	5/6/19	13	12	0	3	2	20	0	0	0	0	0	No	Tadpoles present
28	5/6/19	12	12	0	4	2	5	0	1	0	0	0		GCN eggs already found. Water levels very low
29	NOT FOUND, PRESUMED DRY													
30	4/6/19	14	10	1	1	1	10	0	0	1	3	0	No	GCN eggs already found
31	4/6/19	14	10	1	4	1	15	1	2	2	0	0		GCN eggs already found
32	NOT FOUND, PRESUMED DRY													
33	NOT FOUND, PRESUMED DRY													
34	NOT FOUND, PRESUMED DRY													
N1	4/6/19	14	10	0	3	2	30	5	0	5	2	1		GCN eggs already found
N2	4/6/19	14	10	0	2	4	29	0	0	1	0	0	No	
N3	4/6/19	14	10	0	2	3	30	0	3	0	1	1		GCN eggs already found
N4	4/6/19	14	10	1	2	4	10	0	1	0	0	0	No	

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