

A14 Cambridge to Huntingdon improvement scheme

Environmental Statement

Appendices

Appendix 11.4: Great crested newt

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Executive summary

This is an appendix of the *A14 Cambridge to Huntingdon improvement scheme environmental statement*. It presents an evaluation of great crested newts (GCN) (*Triturus cristatus*) based on recent surveys. It also presents the policy and legislative context within which the EIA has been carried out. Impacts on and mitigation for GCN are considered in *Chapter 11 of the environmental statement (ES)*.

GCN were surveyed using the guidance in the *Great Crested Newt Mitigation Guidelines* (English Nature, 2011).

Between 2013 and 2014, a total of 110 ponds and 220 ditches were assessed for their suitability to support great crested newts. Following the initial assessments, it was determined that 109 ponds and 8 ditches were to be surveyed for the presence or likely absence of GCN. GCN presence was confirmed within 30 ponds and none of the ditches. Presence of GCN was confirmed within an additional two ponds between 2008 and 2009. The ponds have been evaluated as being of local value in the area.

1 Introduction

- 1.1.1 This report is an appendix of the *A14 Cambridge to Huntingdon improvement scheme environmental statement*. It presents an evaluation of the status of great crested newts (*Triturus cristatus*) (GCN) based on a desk-based review of records of GCN and field surveys. It also presents the policy and legislative context within which the environmental impact assessment (EIA) has been carried out. Impacts on and mitigation for GCN are considered in *Chapter 11 of the environmental statement (ES)*.
- 1.1.2 This report presents the findings of the surveys for the scheme between 2008 and 2014.
- 1.1.3 The study included a desktop survey to search for records of GCN and field survey to provide more detailed information. Study or search areas are described for different elements of the study.

2 Great crested newt ecology

- 2.1.1 The great crested newt (GCN) is the UK's largest newt and is easily recognisable from the other newt species by its size and colouring. The skin of an adult GCN is granular in appearance, has a black or dark brown background colour with darker spots and small white spots on the lower flanks. The male has a jagged crest along its back which ends at the rear of the abdomen and a smoother edged crest above and below the tail which decreases in size outside of breeding season. They have a white, silver or grey stripe along the tail. Females do not have the crest or white tail stripe, but do have a yellow-orange stripe along the bottom edge of their tail. Both sexes have an orange or yellow belly with a pattern of black spots or blotches (Langton et al., 2001).
- 2.1.2 GCN use both aquatic and terrestrial habitat. Breeding takes place in ponds during the spring and then they emerge onto the land spending the summer months resting, foraging and dispersing before hibernating in winter (Natural England, undated).
- 2.1.3 They prefer small to medium sized ponds, rather than garden ponds and lakes, with vegetation for egg laying (Langton *et al.*, 2001). Ideally, there should also be open, less vegetated areas to allow adult males to display in clear view of females. Ponds need to support a good invertebrate population to provide food.
- 2.1.4 Their terrestrial habitat must provide permanent areas of refuge for shelter in extreme weather conditions, daytime refuges and foraging and dispersal opportunities which can include rough grassland, scrub and woodland (Langton et al., 2001). For hibernation GCN seek underground crevices, tree root systems, mammal burrows, rubble piles or old walls (Natural England, undated).
- 2.1.5 GCN are widespread in Britain, but have suffered decline over the last century and much of their habitat is fragmented by unfavourable land use. Many populations are declining and only a small proportion of breeding sites have been recorded (Natural England, undated).
- 2.1.6 GCN often exist as 'metapopulations' as newts move between nearby waterbodies. These metapopulations are considered to be connected and belong to the same population (separate from others), as there will be frequent interchange of individuals between waterbodies and gene mixing within that group of waterbodies. The distribution of ponds and the importance of metapopulations is therefore often key to the survival of the species within geographical areas. Loss of habitat, such as through destruction of ponds for example, can result in metapopulations becoming isolated and more vulnerable to localised extinction.

3 Policy and legislation

3.1 Legislation

- 3.1.1 GCN are fully protected under *Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)* and *Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended)*, making it a European protected species (EPS). It is an offence to intentionally kill, injure or disturb GCN, to possess one (whether live or dead), or sell or offer for sale without a licence. It is also an offence to intentionally or recklessly damage, destroy and disturb GCN in any place used for shelter, or obstruct access to such areas. The legislation covers all newt life stages such that eggs, juvenile and adult newts are equally protected.
- 3.1.2 Licences can be granted by Natural England (the licensing authority) to allow otherwise illegal activities, including development, to take place if carried out in accordance with the provisions of the licence.
- 3.1.3 *Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006*, places a duty on all public bodies to have regard to the conservation of biodiversity in England, when carrying out their normal functions (the biodiversity duty).

3.2 National Planning Policy Framework

- 3.2.1 The *National Planning Policy Framework (NPPF)* (2012) sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system. The planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible. If significant harm resulting from a development cannot be avoided (through locating an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.
- 3.2.2 The *NPPF* states that the wider benefits of an ecosystem should be recognised and the presence of a protected species is a substantial consideration for a development proposal (*Circular 06/2005*, (ODPM 2005)). It is therefore considered essential that the presence of protected species and the extent that they may be affected by the proposed development is established in advance of a planning application in order that planning permission can be granted (*Planning Practice Guidance*, 2014).
- 3.2.3 The draft *National Policy Statement (NPS) for National Networks* (Department for Transport, 2013) sets out the Government's vision and policy for the future development of nationally significant infrastructure projects on the national road and rail networks. It provides guidance for promoters of nationally significant infrastructure projects, the basis for the examination by the Examining Authority and for decisions by the Secretary of State. The *NPS* includes general principles for the assessment of national networks, including for EIA.

3.3 Priority species

- 3.3.1 Species of principal importance for the conservation of biodiversity in England are listed under *Section 41* of the *NERC Act 2006*. This list is used to guide decision-makers in public bodies, in implementing their biodiversity duty. The species listed are priorities for nature conservation action and therefore for consideration in impact assessment.
- 3.3.2 The *UK Biodiversity Action Plan (UK BAP)* (JNCC, 2014) was the UK's response to the *Global Convention on Biological Diversity (CBD)* in 1992. It lists priority species and habitats that are identified as being the most threatened and require conservation action. In 2012, the *UK Post-2010 Biodiversity Framework* (JNCC, 2012) succeeded the *UK BAP* and is the UK Government's response to a new strategic plan of the *CBD* which was published in 2010 (JNCC, 2012).
- 3.3.3 Much of the work previously carried out under the *UK BAP* is now focussed at a county level. However, the *UK BAP* lists of priority species and habitats remain important and have been used to draw up the *Section 41* statutory list.
- 3.3.4 The *Highways Agency Biodiversity Action Plan (HABAP)* lists priority species and habitats of the soft estate of England's trunk roads and motorways (excluding London). GCN are a priority for conservation action as listed in the *HABAP*.
- 3.3.5 *Local BAPs (LBAPs)* integrate the conservation measures provided in the *UK BAP* to enhance biodiversity at the local and regional level. The *Cambridgeshire and Peterborough LBAP (2007)* is pertinent to the proposed scheme (Cambridgeshire and Peterborough Biodiversity Partnership, 2014).
- 3.3.6 GCN are listed under *Section 41* of the *NERC Act 2006* and as a priority species on both the *UK BAP* and the *Cambridgeshire and Peterborough LBAP*.

4 Methodology

4.1 Desktop survey

- 4.1.1 Records were requested from the Cambridgeshire and Peterborough Environmental Records Centre (CPERC) for any sites of nature conservation importance for GCN. Records of all GCN within 1km of the scheme were also requested. The search area for the desktop survey has been dictated by professional judgement in accordance with best practice guidance (CIEEM, 2013).
- 4.1.2 Records received from the CPERC were supplemented by a review of the baseline GCN surveys conducted on behalf of the Highways Agency in 2008, 2009 (Atkins, 2009) and 2013 (Atkins, 2013a) and the A14 Girton J32-31 TIP scheme (WSP, 2013), for which there is some overlap within Section 5 and the southernmost edge of Section 4 of the scheme (*Figure 3.1*).

4.2 Field surveys

- 4.2.1 Surveys were undertaken in 2014 and were based on best practice guidance in the *Great crested newt mitigation guidelines* (English Nature, 2001) and confirmed with Natural England during the scoping process.

Scoping assessment

- 4.2.2 Ponds that had not been surveyed in 2013 were visited in March 2014 as part of a scoping exercise. During this visit it was determined if the pond was present and that it was physically suitable for survey, with an adequate amount of water in it so surveys could be carried out. Safe routes of access were also determined, along with any health and safety concerns or access issues associated with the pond or the surrounding area.

Habitat suitability index (HSI) assessment

- 4.2.3 All ponds within 500m of the offline scheme footprint and 250m of the online scheme footprint (henceforth termed the study area), including the A1 from Alconbury to Brampton which is to be widened and the borrow pit areas, were assessed for their suitability to support GCN using the standard Habitat Suitability Index (HSI) assessment method (Oldham *et al.*, 2000). The buffer distance was agreed with Natural England at the scoping stage of the scheme and was based on the proportionality of the likely impact to GCN as a result of the proposed works. The offline scheme footprint is likely to have a greater impact on GCN compared with the online scheme footprint and consequently a wider buffer distance was surveyed. HSI assessments were carried out between 23 April and 3 June 2013 and between 31 March and 8 May 2014. HSI scores were not used to inform the need for presence absence surveys. All ponds which were deemed safe and suitable were surveyed. HSI scores were not taken for ponds that were found to be dry during the scoping visit.

- 4.2.4 Large ponds found to have the presence of fish and carnivorous insects were ruled out of further survey. GCN efts (newt larvae) are highly likely to be predated by fish and carnivorous insects so therefore GCN are unlikely to survive in these large waterbodies.
- 4.2.5 The HSI is designed for use with ponds and not ditches. An initial assessment of condition and suitability to support GCN was carried out for the large number of ditches in the study area. If the ditch was wet, information similar to that taken during a HSI survey was gathered to assess the likelihood of suitability for GCN. Key characteristics to determine whether ditches are likely to support GCN are: a) whether they dry out and b) if they support fish (both being unsuitable for GCN). As agreed with Natural England, ditches were scoped out of further survey effort on this basis. Dry ditches were assumed to be unsuitable to support GCN.

Presence/likely absence survey

- 4.2.6 All waterbodies found to be physically suitable for survey were subject to further survey to determine the presence or likely absence of GCN. Four visits to each waterbody were undertaken between 22 April and 12 June 2014. Surveys were completed under suitable weather conditions, when overnight temperatures were above 5°C with no heavy wind or rain (English Nature, 2001).
- 4.2.7 At least three survey techniques were used during each survey visit to search for the presence of GCN, as per best practice guidelines. These were selected from the following four methods:
- torchlight searching – each waterbody was searched systematically for amphibians after dark using a Clulite 1 million candlelight power torch. All amphibians were recorded, with the number of male, female and juvenile newts noted;
 - bottle trapping – bottle traps (which consisted of a 2 litre drinks bottle cut and suspended on a garden cane) were set at a ratio of one for every 2m of waterbody perimeter. Bottle traps were deployed so as to include an air pocket. The traps were set prior to dusk, left overnight and collected in the early hours of the following morning;
 - egg searching – suitable vegetation in each waterbody was searched for newt eggs which are laid on submerged or floating leaves and folded around the egg. If positive confirmation of eggs was confirmed at a site, the survey was stopped for GCN welfare reasons; and
 - netting – a net was used to capture GCN around the pond margins by sweeping the net along the base of the pond. Care was taken to avoid damaging any aquatic vegetation or stirring up any sediment.
- 4.2.8 The methods used for each waterbody are shown in *Annex 6*.
- 4.2.9 If GCN were confirmed to be present in a waterbody in the first four visits, a further two visits were undertaken between mid-May to mid-June 2014.

4.3 Evaluation

- 4.3.1 Metapopulations were identified by combining confirmed GCN breeding ponds that lay within 500m of each other.
- 4.3.2 The population of GCN within the study area was evaluated using Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Impact Assessment in the United Kingdom* (CIEEM, 2006). This method is in line with the most recently published guidance and represents best practice guidance *Interim Advice Note (IAN) 130/10, 'Ecology and Nature Conservation: Criteria for Impact Assessment'* (Highways Agency, 2010). The evaluation uses a framework linked to a geographical scale at which the receptor has been valued i.e. international, national, regional, county, local or site.
- 4.3.3 The peak count for each metapopulation was calculated as the highest total count across all ponds in that metapopulation on any one survey.

4.4 Limitations

- 4.4.1 Limitations specific to the surveys carried out in the study area included:
- access being denied to certain areas along the scheme; and
 - health and safety concerns in some areas, limiting the assessment and survey of some waterbodies.
- 4.4.2 Thirty three waterbodies could not be surveyed during the 2014 surveys as access was not granted to the waterbody (12, 18, 23, 23a, 27, 35, 39 49, 49a, 50, N4a, N4b, N4c, N4d, N10, N11, N12, N14, N16, N17, N18, N18a, N25, N27, N29, N36, N37, N44, N46, N48, N50, N57 and N58) (*Figure 11.4*).
- 4.4.3 Three waterbodies could not be surveyed during the 2014 surveys due to health and safety constraints (15, N45, and N59).
- 4.4.4 Waterbodies that were surveyed may not have received the full number of surveys or it was not possible to use three survey methods at each visit. The range of survey techniques used is influenced by the suitability of the pond to a particular method and conditions on the day. Netting and egg searching was discontinued in waterbodies after great crested newt presence was confirmed. The details of survey constraints relating to ponds can be seen in *Annex 7*.
- 4.4.5 Out of approximately 500 ditches, approximately 280 were not assessed during the initial assessments due to factors such as access issues and health and safety constraints.
- 4.4.6 The limitations to the field surveys do not represent a significant constraint to adequately assessing the value of GCN for the purposes of undertaking an ecological impact assessment, with a high degree of confidence in the outcome.

- 4.4.7 An absence of a species record within an area does not necessarily reflect an absence of that species from the same area. Similarly the distribution of species records may reflect survey effort rather than an accurate distribution of that species. As such, historic records should be assessed with caution.
- 4.4.8 A survey can only assess the site as it was found at the time of the survey. Species may move in and out of the site at different times and habitats are subject to change. Whilst the results of this survey may no longer be fully representative of the site at the time of construction, nationally recognised standard survey methodologies have been used.
- 4.4.9 Impacts on and mitigation for GCN are considered in *Chapter 11*.

5 Results

5.1 Desktop data

5.1.1 The table in *Annex 1* summarises desktop data for GCN received from CPERC and records from surveys undertaken on behalf of the Highways Agency in 2008 and 2009. The record locations are shown in *Figure 11.4*. No records are located directly within the scheme footprint. Nineteen records are located within the study area dating back to 2008, with the most recent records located at Conington. A concentration of records are located in Conington and small clusters of records are located in the Hinchingbrooke area in Huntingdon and at Debden Farm just outside of Godmanchester. Twenty one records are located outside of the study area.

5.2 Field survey results

5.2.1 GCN were recorded in thirty ponds during the 2013 and 2014 surveys (Ponds 14a, 14b, 14c, 14d, 14e, 14f, 52, 52a, 52b, 31, 31b, 32, 34, 21, 22, 54, N1, N1b, N28, N32, N39a, N39b, N39c, N40, N41, N41a, N42, N43, N43a and N38).

5.2.2 Pond N38 and 54 are currently outside of the survey area or are segregated from the scheme by a significant barrier and did not receive full surveys as described in *Annex 7*. They have been included in the report due to the confirmed presence of GCN.

5.2.3 From previous Highways Agency surveys (Atkins, 2009), GCN had been recorded in two further ponds (ponds 23 and 49) in 2009. Access to these ponds was refused in 2013/14 and therefor continued presence has been assumed.

5.2.4 In the ES for a previous scheme (Atkins, 2009), presence of GCN was assumed for pond 33 due to its proximity to pond 34 where GCN were recorded in 2008 (pond 33 could not be surveyed at the time due to access constraints). However following surveys of pond 33 in 2013 which did not record any GCN, GCN absence can be assumed for pond 33.

5.2.5 The *Interim Environmental Assessment Report* (Atkins, 2013) also highlighted the likely presence of GCN in pond 48 due to desktop records in this vicinity. However following negative survey results for this pond in 2013 and review of the records (of which the grid references are imprecise), it has been concluded that GCN are absent from pond 48.

HSI assessment - ponds

5.2.6 The locations of all waterbodies identified within 500m of the offline scheme footprint and 250m of the online scheme footprint can be found in *Figure 11.4*.

5.2.7 HSI values for the ponds and an assessment of their potential to support GCN can be found in *Annex 2*. Full survey data for ponds can be found in *Annex 3*.

- 5.2.8 Eighteen ponds have a suitability class of excellent and nineteen ponds have a suitability class of good. Twenty three ponds have a suitability class of average. Thirteen ponds have a suitability class of below average and thirty seven ponds have a suitability class of poor.
- 5.2.9 Ponds 12, 27, 35 and 39 were discovered to be dry during initial visits to ponds in April 2013 and no access was granted during 2014. Ponds 19, N3, N9, N15, N19, and N34 were discovered to be dry during the scoping visit in March 2014.
- 5.2.10 Ponds 20, 44c, 44d, N13, N20, N22, N31 and N35 were discovered not to exist during the scoping visit.
- 5.2.11 Ponds 12d, N5, N7, N8, N21, N23, N24, N30, N47, N52, N53, N54, and N60 were ruled out of further survey due to their large size (lakes) and/or presence of fish and carnivorous invertebrates. Pond 3c was a concrete lined moat and so unsuitable for survey.
- 5.2.12 Pond 54 was outside of relevant buffers at the time of survey.
- 5.2.13 After the first survey, N38 was ruled out from further survey effort as the A14 was considered a significant barrier to newt movement and they will therefore not be able to access the study area. GCN presence within the pond was confirmed during the initial site survey.

HSI assessment - ditches

- 5.2.14 Approximately 500 ditches were identified in the study area, and of these, approximately 220 were assessed for suitability.
- 5.2.15 Eight of these ditches (*16, +42, 51, 54, 57, 58, 84 and N51 (ditch)) were assessed as having potentially suitable habitat for GCN and were subsequently surveyed after the initial assessments.
- 5.2.16 All other ditches that were assessed for suitability were regarded as unsuitable for surveys. Full ditch assessment information can be found in *Annex 4*.

Presence/likely absence surveys – ponds and ditches

- 5.2.17 All surveys were carried out under suitable weather conditions. Full weather data can be found in *Annex 5*.
- 5.2.18 The results of the field survey are presented in *Annex 3* and shown in *Figure 11.4*. Some waterbodies that were surveyed in previous surveys are shown for completeness, although they no longer fall inside the study area for the current scheme layout.
- 5.2.19 Palmate newts (*Lissotriton helveticus*) were recorded in ponds 31, 37 and N32a. These were not included in the table in *Annex 3* due to the small number of records.
- 5.2.20 *Table 5.1* gives maximum counts of GCN individuals recorded at survey sites.

Table 5.1: Maximum count of great crested newt individuals during survey

Pond / ditch number	Peak count	Population class
14a	2	Small
14b	11	Medium
14c	5	Small
14d	10	Small
14e	12	Medium
14f	8	Small
21	3	Small
22	47	Medium
31	9	Small
31b	1	Small
32	4	Small
34	2	Small
52	14	Medium
52a	16	Medium
52b	26	Medium
N1	8	Small
N1b	30	Medium
N28	5	Small
N32	4	Small
N39a	13	Medium
N39b	4	Small
N39c	20	Medium
N40	1	Small
N41	17	Medium
N41a	4	Small
N42	4	Small
N43	0 (Larvae only)	Small
N43a	3	Small
54	1	Small
N38	61	Medium

Population size classes (English Nature, 2001) Small=1-10 max count, medium=11-100, large> 100.

6 Evaluation

- 6.1.1 *Table 6.1* shows the key areas considered to be supporting GCN and lists the clusters of ponds in which they are likely to exist within the same metapopulation.
- 6.1.2 Using the guidance in CIEEM (2006), the population of GCN has been evaluated as being of local value in the area.

Table 6.1: Approximate location of GCN metapopulations

Location	Pond numbers in metapopulation	Metapopulation peak count**
West of Brampton Hut	49 (4)*	4
Hinchingbrooke	52 (14), 52a (16), 52b (26), N1 (8), N1b (30)	82
Outskirts of Godmanchester	31 (9), 31b (1), 32 (4), 34 (2), N28 (5), N32 (4)	15
Fenstanton	21 (3), 22 (47), 23 (1)*	50
Conington	N39a (13), N39b (4), N39c (20), N40 (1), N41 (17), N41a (4), N42 (4), N43 (0 – larvae only), N43a (3)	49
City of Cambridge crematorium	14a (2), 14b (11), 14c (5), 14d (10), 14e (12), 14f (8)	36

GCN Peak count for individual ponds shown in brackets

* surveyed in 2009

** the highest total count across all ponds in that metapopulation on any one survey

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Annex 1: Desktop records for GCN from CPERC and survey records for GCN in 2008 and 2009

Location	Grid reference	Date	Details	Type of record
Brampton	TL179707	19/05/2008	One female found. Outside of the study area.	Record centre
Brampton Wood SSSI	TL180699	2009	Square pond, 30. Outside of the study area.	Record centre
Brampton Wood SSSI	TL180699	19/05/2008	One male found. Outside of the study area.	Record centre
Brampton Wood SSSI	TL180699	30/04/2009	Two males and two females found. Outside of the study area.	Record centre
Cambridge	TL429599	2003	Outside of the study area.	Record centre
Cambridge	TL467606	31/08/2006	One male found under wheelie bin. Outside of study area.	Record centre
Cambridge	TL467606	06/09/2006	Male, sub-adult in my garden. Outside of study area.	Record centre
Cambridge	TL467606	21/09/2007	Male in flower bed in garden. Outside of the study area.	Record centre
Cambridge	TL468612	18/09/2006	Adult. Squashed on pathway under bridge for old railway line on Milton Road. Outside of the study area.	Record centre
Conington (Cams)	TL320661	2009	Outside of the study area.	Record centre
Conington (Cams)	TL320661	2009	Peak count of 10 on 30-31/03/09. Larvae observed during the netting survey on 27/07/09. The surveys indicate a small to medium population. Fish present. Outside of the study area.	Record centre

Location	Grid reference	Date	Details	Type of record
Conington Hall	TL3166	2010	Peak count of 23 on 08/04/10. Within the study area. Re-surveyed in 2014 likely match with one of the Conington hall ponds – (N39a, N39b, N39c, N41, N41a, N42, N43a).	Record centre
Conington Hall	TL3166	2010	Two recorded on 08/04/10 and on 05/05/10. Within the study area. Re-surveyed in 2014 likely match with one of the Conington hall ponds – (N39a, N39b, N39c, N41, N41a, N42, N43a).	Record centre
Conington Hall	TL3166	2010	Peak count of 30 on 08/04/10. Within the study area. Re-surveyed in 2014 likely match with one of the Conington hall ponds – (N39a, N39b, N39c, N41, N41a, N42, N43a).	Record centre
Conington Hall	TL3166	2010	Peak count of 69 on 05/05/10. Within the study area. Re-surveyed in 2014 likely match with one of the Conington hall ponds – (N39a, N39b, N39c, N41, N41a, N42, N43a).	Record centre
Conington Hall	TL3166	2010	Peak count of 11 on 05/05/10. Within the study area. Re-surveyed in 2014 likely match with one of the Conington hall ponds – (N39a, N39b, N39c, N41, N41a, N42, N43a).	Record centre
Conington Hall	TL321666	2010	Peak count of 47 on 08/04/10. Within the study area. Re-surveyed in 2014 likely match with one of the Conington hall ponds – (N39a, N39b, N39c, N41, N41a, N42, N43a).	Record centre
Dry Drayton	TL377620	2003	Outside of the study area.	Record centre
Dry Drayton	TL377620	15/05/2000	Outside of the study area.	Record centre

Location	Grid reference	Date	Details	Type of record
Girton	TL426627	19/03/2010	A total of 39 adults caught in 12 double ended funnel traps. Outside of the study area.	Record centre
Hinching-brooke Country Park	TL2171	2009	Outside of the study area.	Record centre
Lady Adrian School, Girton	TL424626	11/03/2005	2 males seen under tyre. Outside of the study area.	Record centre
Madingley Road Park and Ride, Cambridge	TL425595	2009	Ponds restored and improved as part of 'C2010, Ponds in the Landscape' in 2009. Outside of the study area.	Record centre
Madingley Road Park and Ride, Cambridge	TL425595	2009	One female found by torching and eggs present 27/04/09. Eggs found on 06/05/09. Appears to be a small population only. Outside of the study area.	Record centre
Oakington	TL407644	12/03/2012	54 great crested newts counted in back garden pond. Outside of the study area.	Record centre
Oakington	TL408644	27/02/2012	Garden pond. Outside of the study area.	Record centre
Oakington	TL408644	12/03/2012	About 20 great crested newts counted in front garden pond. Outside of the study area.	Record centre
Near Fenstanton	TL 30340 68486	2009	Within the study area. No access for survey granted in 2013 or 2014 - Pond 23.	Atkins report (Atkins, 2009)
Nursery Farm, Brampton	TL 19630 71997	unknown	Within the study area. Re-surveyed in 2013 - pond 51a. Historic record mentioned in Atkins report.	Atkins report (Atkins, 2009)
Woodhatch Farm, Brampton	TL 18227 71729	2009	Within the study area. No access for survey granted in 2013 or 2014 - pond 49.	Atkins report (Atkins, 2009)

Location	Grid reference	Date	Details	Type of record
Brampton	TL 19004 70968	unknown	Within the study area. Re-surveyed in 2013 - pond 48. Historic record mentioned in Atkins report.	Atkins report (Atkins, 2009)
Lower Debden Farm	TL 24974 68305	2009	Within the study area. Re-surveyed in 2013 – pond 32.	Atkins report (Atkins, 2009)
Debden Farm	TL 25858 67818	2009	Within the study area. Re-surveyed in 2013 pond 31.	Atkins report (Atkins, 2009)
Debden Top Farm	TL 24792 67474	2008	Within the study area. Re-surveyed in 2013 - pond 34.	Atkins report (Atkins, 2009)
Debden Top Farm	TL 24962 67445	2008	Within the study area. Re-surveyed in 2013 - pond 33.	Atkins report (Atkins, 2009)
Old Clayfields, Connington	TL 30934 67869	2009	Within the study area. Re-surveyed in 2013 - pond 21.	Atkins report (Atkins, 2009)
Old Clayfields, Connington	TL 30984 67859	2009	Within the study area. Re-surveyed by Atkins in 2013 - Pond 22	Atkins report (Atkins, 2009)
Cambridge Crematorium	TL 39953 62706	2009	Within the study area. Re-surveyed in 2013 - pond 14a.	Atkins report (Atkins, 2009)
Hinching-brooke Hospital	TL 22761 71911	2009	Within the study area. Re-surveyed in 2013 - pond 52.	Atkins report (Atkins, 2009)
Hinching-brooke Hospital	TL 22655 72177	2009	Within the study area. Re-surveyed in 2013 - pond 52a.	Atkins report (Atkins, 2009)

Annex 2: HSI results and suitability class of ponds

Pond number	HSI score	Suitability class	Pond number	HSI score	Suitability class
1	0.31	Poor	37	0.71	Good
1a	0.65	Average	38	0.49	Poor
1b	0.44	Poor	40	0.2	Poor
1c	0.36	Poor	41	0.19	Poor
2	0.21	Poor	42	0.71	Good
3a	0.76	Good	43	0.2	Poor
3b	0.83	Excellent	44	0.19	Poor
3d	0.46	Poor	44a	0.56	Below average
3e	0.44	Poor	44b	0.22	Poor
3f	0.33	Poor	45	0.22	Poor
4	0.24	Poor	46	0.21	Poor
5	0.47	Poor	47	0.51	Below average
6	0.8	Excellent	48	0.78	Good
6a	0.66	Average	51	0.22	Poor
6b	0.53	Below average	51a	0.48	Poor
7	0.52	Below average	51b	0.39	Poor
8	0.74	Good	52	0.68	Average
9	0.62	Average	52a	0.62	Average
10	0.89	Excellent	52b	0.67	Average
11	0.48	Poor	52c	0.39	Poor
11a	0.66	Average	53	0.44	Poor
12a	0.65	Average	54	0.62	Average
12b	0.72	Good	56	0.47	Poor
12c	0.8	Excellent	58	0.4	Poor
12e	0.8	Excellent	N1	0.55	Below average
13	0.69	Average	N1a	0.46	Poor
14	0.92	Excellent	N1b	0.76	Good
14a	0.67	Average	N2	0.63	Average
14b	0.65	Average	N2a	0.67	Average
14c	0.61	Average	N2b	0.86	Excellent
14d	0.62	Average	N6	0.52	Below average
14e	0.65	Average	N21	0.36	Poor
14f	0.7	Good	N23	0.71	Good
15a	0.44	Poor	N24	0.78	Good

Pond number	HSI score	Suitability class	Pond number	HSI score	Suitability class
15b	0.36	Poor	N26	0.8	Excellent
16	0.92	Excellent	N28	0.86	Excellent
17	0.67	Average	N30a	0.64	Average
21	0.87	Excellent	N32	0.49	Poor
22	0.88	Excellent	N32a	0.72	Good
23b	0.35	Poor	N33	0.51	Below average
23c	0.36	Poor	N38	0.74	Good
24	0.85	Excellent	N39	0.53	Below average
25	0.62	Average	N39a	0.75	Good
25a	0.46	Poor	N39b	0.66	Average
26	0.78	Good	N39c	0.82	Excellent
28	0.81	Excellent	N40	0.84	Excellent
29	0.43	Poor	N41	0.88	Excellent
30	0.6	Average	N41a	0.54	Below average
31	0.71	Good	N42	0.69	Average
31a	0.43	Poor	N43	0.71	Good
31b	0.32	Poor	N43a	0.76	Good
32	0.71	Good	N51	0.73	Good
33	0.57	Below average	N52	0.31	Poor
34	0.59	Below average	N55	0.86	Excellent
36	0.56	Below average	N56	0.53	Below average

Annex 3: Full survey data – ponds and ditches

Pond	Visit 1			Visit 2			Visit 3			Visit 4			Visit 5			Visit 6		
	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth
1			1Am/1Af			4Am/1Af			1Am/2Af			2Am						
1a			5Am			5Am/13Af/4A/1J			3Am/1J			4Am/4Af						
1b	No observations			No observations			No observations			L								
1c	No observations			No observations					1Af	No observations								
2	No observations			No observations					1Am	No observations								
3a			4Af/3Am			7Af/6Am			6Af/2Am/1J			11Af/1Am						
3b			6Af			5Af/1Am			5Af/1Am			2Af						
3d	2A			L			No observations			No observations								
3e	9A			L			3A			L								
3f	No observations			No observations			1A			No observations								
4	65A/L			10A			12A			2A/L								
5	No observations			12A			1A			L								
6	3A		12Am/17Af/2J	No survey			L		4Af/2Af	L		2Af/Am/16J						
6a	1A			No Observations			L			L								
6b	L			L			L											
7	No observations			No observations			No observations			2A								

Fr/T: Frog or Toad; A: Adult; F: Female; M: Male; J: Juvenile, metamorphosed newt ('eft'); L: Tadpole, un-metamorphosed newt

Pond	Visit 1			Visit 2			Visit 3			Visit 4			Visit 5			Visit 6		
	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth
8	L			L														
9	No observations																	
10	1A			2A			No observations			No observations								
11	2A			1A			3A			No observations								
11a	L			L														
12e	L		2Af/1A m	L		2Af												
13	No observations																	
14			2Am/3 Af			1Af			1Am/2 Af									
14a	2A		2Am		E	2E			1Am		1Am/ 1Af/J	1Am	L			L		1Af
14b	8A		1A		1A	1A	1A	3Af	5Af/7A m	2A	3Af/3 Am	4Am/2 Af	1A	3Am/ 3Af/4 A	4Am		8Am/ 2Af/1 A	5Af/5A m
14c	1A		1A		1A	5Af	1A	2Am/ 3Af	6Af/5A m		2Af/2 Af	4Af/1A m/3A	1A	2Af/2 Am	4Af/1A m		2Af/2 Am	4Am/2A f
14d		10A	1A	1A	2Am			2Af	4Af/3A m			7Af/2A m/1A	1A	1J	8A	2A		4Af
14e	1A	12A	1A		6A	1Af		2Am/ 7Af/7 A	10Af/1 0Am		4Am/ 5Af/3 A/1J	3Am/2 Af	1A	2Af/2 Am/2 A/1J	9A	4A	3Am/ 1J	11Af/9A m
14f		2A	3Af/11 Am		1Am	3Af	1A	1Am	7Af/4A m		9Am	8Am/4 Af/1J	4A	2Am/ 1Af/1 A	A+	1A	1Am/ 1Af	5Af/1A m
15a	A+			No observations			No observations			No observations								

Fr/T: Frog or Toad; A: Adult; F: Female; M: Male; J: Juvenile, metamorphosed newt ('eft'); L: Tadpole, un-metamorphosed newt

Pond	Visit 1			Visit 2			Visit 3			Visit 4			Visit 5			Visit 6		
	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth
15b	A+			No observations			L			L								
16	No observations			No observations			No observations			No observations								
17			5Am/11 Af	No observations					1Af	No observations								
21		1Am/2Af/1J	7Am/1 Af		1Am/4A/2J	5Af		1Am/1Af	2Af/4Am		1Am/1J	4Am/1 Af		3J	4Am/9 Af/1J		1Am/4Af/3 J	6Am/1Af
22		6Am/28Af/6J	4Am/1 Af/2J		18Am/61Af/1J/E	4Am/17Af		11Am/39 Af	2Am/4 Af		5Am/16af/7 J	8Am/3 Af		5Am/9Af/3 4J	2Af		7Am/14Af/11J	1Am
23b	No observations			No observations			No observations			No observations								
23c			3Am/2 Af			2Am	No observations			No observations								
24			3J/5L			11Af/100 +J/L			1Am/6 Af/100 +J/L			4Af/500 +L						
26	No observations			No observations			No observations			No observations								
28	No observations			No observations			No observations			No observations								
29	No observations			No observations			No observations			No observations								
30	No observations			No observation			No observations			No observations								
31	No observation				4Am/3Af			2Am/3af	1Af		9Am/8Af/2 J			2Af/2 Am/2 J	1Am		2Am/5Af/2 J	2Am/1Af

Fr/T: Frog or Toad; A: Adult; F: Female; M: Male; J: Juvenile, metamorphosed newt ('eft'); L: Tadpole, un-metamorphosed newt

Pond	Visit 1			Visit 2			Visit 3			Visit 4			Visit 5			Visit 6		
	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth
31a	No observations			No observations			No observations			No observations								
31b		1Af		No observations			No observations			No observations			No observations			No observations		
32		1Am		No observations				1Am/ 3A				5Am/6 Af			2Am/2 Af		1Af	2Af/2A m
33	No observations			No observations			No observations			No observations			No observations			No observations		
34		1Am		No observations			No observations				2Am	1Am		1Am		No observation		
36	No observations			No observations			No observations					1Af						
37			5Af/3A m	5Af/ 8Am /3L					12Af/19 Am			3J/2Am /4Af						
38			7A			4A			19A			7A						
40	No observations			No observations			No observations			No observations								
41	No observations			No observations			No observations			No observations								
42	No observation					1Af	No observations			No observations								
43										L								
44	No observations			No observations			No observations			No observations								
44a	No observations			No observations			No observations			No observations								
44b	No observations			No observations			No observations			No observations								
45	20+ A			1A			L			2A								
46	L			L			L			L								
47	No observation			No observation			No observation			No observation								
48	3A			4A			1A			1A								
51	No observation			No observation			No observation			No observation								

Fr/T: Frog or Toad; A: Adult; F: Female; M: Male; J: Juvenile, metamorphosed newt ('eft'); L: Tadpole, un-metamorphosed newt

Pond	Visit 1			Visit 2			Visit 3			Visit 4			Visit 5			Visit 6		
	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth
51a	No observations			No observations			No observations			No observations								
51b	2A			2A			No observations			No observations								
52		8Am /3Af	11A	1A	11Am /6Af	18A		8Am/ 3Af	28A		6Am/ 3Af	16A		1Af/1 J	3A		1A	4Af/4A m\2A
52a		4Am /6Af	14A		5Am/ 2Af			8Am/ 8Af	2A		2Am/ 1Af	2A	No observations				2Am/ 5Af/1 J	
52b	2A	10A m/7 Af	3A	2A	22Am /10Af	3A		29A m/ 18Af	7A	2A	6Am/ 1Af	10A	2A	3Am/ 1Af	2Af		14A m/8A f/1J	1Am/1A f/1A
52c			1Am															
53			17A			23A	L		24A	L		18A						
54		1Am		No Observations														
N1	1A	5Am /3Af	5A	2A	6A	5A		1Af			1Am/ 1Af	2A	1A	2Af/1 Am	2Am	5A		2Am/3A f
N1a	No observations			No observations			No observations			No observations								
N1b		24A m/1 4Af	26A		54A	12A		6Am/ 6Af	4A		4Am/ 13Af	9A		5Af/2 Am/ E	1Am/1 Af/E		5Am/ 6Af	1Am/1A f
N2	J			Pond dry														
N2a	L			Pond dry														
N2b	No observations			Pond dry														
N6	4A					2Af/6Am			2Af/4A m			3Af						
N21			9A															

Fr/T: Frog or Toad; A: Adult; F: Female; M: Male; J: Juvenile, metamorphosed newt ('eft'); L: Tadpole, un-metamorphosed newt

Pond	Visit 1			Visit 2			Visit 3			Visit 4			Visit 5			Visit 6		
	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth
N23	No observations																	
N24			3A, 3J															
N26	No observations			No observations			No observations			No observations								
N28			29A		1Am/ 1Af	20A			12A			8A		1Af/ A4m	14Af/8 Am		1Am	12Am/1 2Af
N30a			1A			3A	No observations					1A						
N32		4Am	32A			19A		4Am			4Am	62A		1Am	43Af/2 4Am		2Am/ 1Af	27Am/2 2Af
N32A			2A			9A			21A			11A						
N33			1Af			1Am/1Af	No observations			No observations								
N38		65A m/4 4Af	9A															
N39	No observations			1A			No observations			No observations								
N39A		2Am /13A	4A			5A		1A				3A		1Am/ 1Af	7Af/2A m			1Am/14 Af
N39B		3Am /5Af	5A			7A			3A	L		1Am/J		1Am/ 2Af			3Af	2Am/3A f
N39C		15A m/3 Af	1A		16Am /4Af			6A			2Af	1Am/1 Af			2Af/2A m		3Af	4Am/1A f
N40		1Am	1A		2J				1A	No observations					1Am			1Am
N41		11Af /8A	12A		1Am/ 2Af	17A			15A	No observations				3Am/ L	2Am/5 Af/J		5Am/ 16Af	9Am/5A f

Fr/T: Frog or Toad; A: Adult; F: Female; M: Male; J: Juvenile, metamorphosed newt ('eft'); L: Tadpole, un-metamorphosed newt

Pond	Visit 1			Visit 2			Visit 3			Visit 4			Visit 5			Visit 6		
	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth
N41a		3Af/ 4A	4A		2Af/4 J				5A	1A		1Am/1 Af/J			3Af/J	No observations		
N42			3A		1Am/ 2Af/1 A	13A		1A	7A			2Af/J		2Af/L	2Am/2 Af/J		4Af	2Af/1A m
N43			11A			7A		2J	8A/J		J	1Am/J			2Af/2A m			
N43a		1Am /2Af	2A	No observations					2A		1Af/2 Am/J			2Am/ 1Af	2Am/4 Af			
N51	L		73A			3A			51A	2A		12A						
N55			12A			13A			4A			4A						
N56	No observations					2A			2A	Pond dry								
12a	13A			No observations			No observations			No observations								
12b	8A			No observations			No observations			No observations								
12c	6A		1Af			1Af	No observations			No observations								
25			2Am/1 Af			3Am/2Af	No observations					3Am						
25a			2Am	No observations			No Observations			No Observations								
56			7Am/1 Af/1J			2Am/3Af			4Am/5 Af			6Am/13 Am						
58	No observations			No observations			No observations			No observations								
Ditch *16	No observations			No observations			No observations			No observations								
Ditch 51	No observations			No observations			No observations			No observations								

Fr/T: Frog or Toad; A: Adult; F: Female; M: Male; J: Juvenile, metamorphosed newt ('eft'); L: Tadpole, un-metamorphosed newt

Pond	Visit 1			Visit 2			Visit 3			Visit 4			Visit 5			Visit 6		
	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth	Fr/T	GCN	Smooth
Ditch	L			No observations														
Ditch 54	No observations			No observations			No observations			No observations								
Ditch 57/58	No observations			No observations			No observations			No observations								
Ditch 84			1A	L					7Af			E						
Ditch +42	No observations			1A			L											

The total number of GCN recorded for each survey technique at each pond has been collated to show the total number of GCN recorded per survey (male and female records have been separated). This does not necessarily equate to the maximum number of GCN present as individuals may have been recorded by more than one survey technique on the same visit.

Great crested newt data is shown in bold as the main subject of this report.

Fr/T: Frog or Toad; A: Adult; F: Female; M: Male; J: Juvenile, metamorphosed newt ('eft'); L: Tadpole, un-metamorphosed newt

Annex 4: Summary survey data – ditches

The initial ditch assessments were conducted by two surveyors on different dates (known as Surveyor A and Surveyor B).

The following tables have been separated into the results recorded by Surveyor A and Surveyor B

Surveyor A Survey Results

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
22/04/2014	*16	Wet	Adj- Trees, hedges. Arable and Urban	Likely absent	N (Inaccessible)	Likely absence	Good	0	Bad	1	Frequently (DRY)	Y	Torchlight survey may be possible.
22/04/2014	*E	Dry	Adj- Trees, hedges. Arable and Urban	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
22/04/2014	*11a	Dry	Adj- Trees, hedges. Arable and Urban	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Not designated *11a on map but join to *11 non-existent.
22/04/2014	*17	Wet	Adj- PBW, Good refugia in surrounding area- slabs, rough grass	Likely absent	N (Steep banks)	Likely absence	Good	0	Bad	2	Rarely	N	Very poor water quality inhibit GCN.
22/04/2014	*12	Dry	Adj- Scrub/ SI TR, Nettles	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Not wet as stated on maps. Lots of rubbish.
22/04/2014	*18	Wet	SI, TR, PBW	Likely absent (Shallow)	N (Too shallow)	Likely absence	Good	5	Moderate	1	Sometimes	N	Dominated by watercress locally. Dominated by star wort locally. Perhaps potential for egg searching.
22/04/2014	*18a	Wet	SI, Hedge	Likely absent	N (Inaccessible)	Likely absence	Good	0	Poor	2	Frequently	N	Ditch not on map but is positioned between ditch 17 and *18.
22/04/2014	*G	Wet	Arable, hedge	Likely absent	N (Inaccessible)	Likely absence	Poor	<1	Poor	1	Rarely	N	Accessibility prevents further survey. Torchlight survey possible.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
22/04/2014	*Ga	Wet	Arable	Likely absent	N (Inaccessible, vegetation overlying rabbit holes)	Likely absence	Poor	0	Poor	Not known (covered by dead material)	Rarely	N	Abundance of dead woody material present.
22/04/2014	*Z	Wet	Arable, SI and TR	Likely absent	N (Inaccessible and large coverage of vegetation in ditch)	Likely absence	Moderate	<1	Moderate	2	Rarely	N	Not dry as stated on maps. Impossible to access for further surveying. Sizeable (2m wide in places).
22/04/2014	18	Wet	Arable, hedge, A1	Likely absent	N (Inaccessible)	Likely absence	Poor	<1	Moderate	Not known (pond too shaded)	Rarely	N	Odd sections which are open and not shaded have high macrophyte cover.
22/04/2014	17	Dry	TR, scrub, hedge	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Not wet as stated on maps.
22/04/2014	*11	Dry- wet area towards southern end	Arable, hedge	Likely absent (Shallow)	N (Inaccessible)	Likely absence	Poor	<1	Moderate	0	Frequently (DRY)	N	Ditch dry for most of its length and not wet as stated on map.
22/04/2014	*F	Dry	Hedge, SI, SS	n/a	N	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
22/04/2014	21	Wet	Urban, arable	Not known- couldn't be netted (likely absent)	N (Steep banks)	Likely absence	Poor	<1	Moderate	0	Never	N	Remote nature and poor connectivity likely to prohibit GCN. Would be suitable for torching. Abundance of tadpoles.
22/04/2014	A	Dry	Arable, hedge	n/a	N (No need-dry)	n/a	Isolated	n/a	n/a	n/a	Frequently (DRY)	N	Very shallow ditch.
22/04/2014	19	Dry- remote slight wet patches	Arable, A1, Urban	n/a	N (No need-dry)	n/a	Isolated	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
22/04/2014	*19	Dry	Arable, A1, Urban	n/a	N (No need-dry)	n/a	Isolated	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
22/04/2014	*20/*21	Wet	Arable, A1, Urban	Not known (Possible)	N	Likely absence	Moderate	3	Moderate	0	Never	Possible	*20/*21 same ditch. Dominant watercress. Possible to survey although isolated habitat may not have enough connectivity to provide source of GCN populations.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
22/04/2014	*H	Wet	Arable, hedge	Likely absent	N (Inaccessible)	Likely absence	Poor	0	Moderate	0/1	Rarely	N	Not dry as stated on map. Difficult access to ditch. Not enough water for bottle trapping.
22/04/2014	23	Dry	Arable, hedge, urban	Likely absent	N (Inaccessible)	Likely absence	Poor	0	Moderate	3	Rarely	N	Ditch dry.
22/04/2014	20	Wet	Urban, arable	Not known-couldn't be netted (likely absent)	N (Steep banks)	Likely absence	Poor	<1	Moderate	0	Never	N	Abundance of tadpoles.
22/04/2014	22	Wet	Urban, arable	Not known-couldn't be netted (likely absent)	N (Steep banks, too shallow)	Likely absence	Poor	<1	Moderate	0	Never	N	Abundance of tadpoles.
23/04/2014	*K	Wet	Scrub, hedge, arable	Likely absent (Shallow)	N (Steep banks)	Likely absence	Moderate	4	Moderate	0	Rarely	N	Not dry as stated on maps. Shallow gravelly bottom.
23/04/2014	*22	Wet (Dry halfway up northwards)	A1, arable, scrub	Likely absent	N	Likely absence	Poor	1	Poor	0	Frequently (DRY in places)	N	Rubbish from A1. Algae dominant. 7 Greylag present 20m from ditch.
23/04/2014	25	Wet	Arable, hedge	Likely absent	Y (See notes)	1 Mallard seen	Poor	0	Moderate	0	Rarely	N	Limited access due to steep banks. 50m section netted with no evidence of fish. Good visibility so fish/newts should have been spotted if present.
23/04/2014	*I	Dry	Scrub, SNG	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
23/04/2014	C	Dry	Arable	n/a	N (No need-dry)	n/a	Isolated/Poor	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
23/04/2014	D	Dry											Too short to be classified as ditch.
23/04/2014	29	Dry	Arable, A1, Hedge	n/a	N (No need-dry)	n/a	Isolated/Poor	n/a	n/a	n/a	Frequently (DRY)	N	Terrestrial vegetation indicates year round dryness.
23/04/2014	28	Wet	Arable, A1	Not known-couldn't be netted (likely absent)	N (Inaccessible and large coverage of vegetation in ditch)	Likely absence	Isolated/Poor	3	Moderate	0	Sometimes	N	Flows easterly towards A1.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
23/04/2014	32	Wet	Poplar plantation, Next to Brampton/ Buckden road	Likely absent	Y (See notes)	Likely absence	Isolated/ Poor	0	Poor	5	Sometimes	N	Netted small section. Only found backswimmers. Once extensive during winter but has dried out significantly since.
23/04/2014	G	Dry	Arable, Next to Brampton/ Buckden road	Likely absent	N (No need-dry)	Likely absence	Isolated/ Poor	n/a	n/a	n/a	Frequently (DRY)	N	Large section of ditch shown on map non-existent.
23/04/2014	33	Dry	Landfill, PBW, SI	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Evidence that ditch has been wet recently. Ditch not wet as shown on maps.
23/04/2014	F	Dry	A1, SI, SNG	n/a	N (No need-dry)	n/a	Isolated/ Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Concrete lined in places.
23/04/2014	L	Dry	Arable, road	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
23/04/2014	*M	Dry	Arable, road	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
23/04/2014	*23	Wet (See notes)	Arable, road	Likely absent (Shallow)	N	Likely absence	Poor	0	Moderate	1	Sometimes	N	Wet in bottom section. Will be dry in next few weeks. Very shallow. *23 same ditch as K.
23/04/2014	*L	Dry	Arable, road, rail	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
23/04/2014	*Na	Dry	Arable, road, hedge	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Ditch not on map but position opposite *N at the entrance of Lower Debden Farm.
23/04/2014	*N	Dry	Arable, road, hedge	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Does hold water at the right angle junction of Lower Debden Farm but still unsuitable for newts.
24/04/2014	Ya	Dry	Arable, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	New ditch not on map but runs North/South from ditch Y.
24/04/2014	Y	Dry	Arable, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Bee hives located close to ditch.
24/04/2014	*24	Dry	Arable, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Not wet as stated on maps. Eastern end of *24 visited from road.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
24/04/2014	*32	Wet (See notes)	Arable, road	Confirmed presence (See notes)	N (Steep banks)	Possible although not seen	Moderate	0	Good	0	Never	N	Labelled West Brook on OS maps. Several fish seen in brook. Shallow, gravel bottom. Flowing north easterly. Variable flow with several areas holding relatively large body of water.
24/04/2014	41,42	Dry	Arable, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Note 41.
24/04/2014	W	Dry	BW, arable	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Pond located halfway along north west direction of W. Likely to dry up in next few weeks. Slight accumulation in ditch by road.
24/04/2014	Wa	Dry	BW, arable	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Ditch not on map flows southerly along woodland from top of ditch W.
24/04/2014	*Qa	Wet	Road, arable, hedge	Likely absent	N (Inaccessible)	Presence possible although not confirmed	Poor	0	Poor	1	Rarely	N	New ditch not on map but sizeable. Shallow towards northern end. Abundance of dead material in places.
24/04/2014	*Q	Dry	Road, arable, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
24/04/2014	AA	Dry	Arable, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Non-existent towards road end.
24/04/2014	*AA	Wet	Arable, hedge	Likely absent (Shallow)	N	Likely absence	Moderate	4	Moderate	Not known (ditch too shaded)	Frequently (DRY in places)	?	Pond located between AA and *AA. Approx. 10m x 4m. Mallard present. Has suitable egg laying substrate and could be bottle trapped.
24/04/2014	DD	Wet (See notes)	Arable, hedge		N		Poor						Wet from junction with *AA.
24/04/2014	CC	Dry	Arable, scrub	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	CC runs from near pond on AA/*AA junction.
24/04/2014	58	Wet	A14, arable, hedge, SI, TR	Presence possible although not confirmed	N (Steep banks)	Presence possible although not confirmed	Good	0	Moderate	3	Never	Y	Large body of water in places that are likely to be wet all year round. No aquatic life observed but provides good habitat for newts. Bottle trapping possible but access difficult. Flows NE.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
24/04/2014	QQ	Wet (See notes)	A14, SI, arable	Likely absent	N (Too shallow)	Likely absence	Moderate	4	Not assessed (see notes)	Not assessed (see notes)	Frequently	N	Wet at NW end and dry for the majority of its length.
24/04/2014	55	Wet	Arable, A14, SI, grass field margins, hedge	Likely absent	N	Likely absence	Moderate	4	Moderate	3	Sometimes	N	Shallow will probably dry out over spring/summer.
24/04/2014	51	Dry	Arable, hedge, road	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	Y	Note ditch does not run alongside 55 to the A14. Small volume of water at NE end by culvert.
24/04/2014	54	Wet	Arable, road, hedge	Likely absent	N (Too shallow)	Likely absence	Moderate	4	Moderate	0	Rarely	Y	Shallow will probably dry out over spring/summer.
24/04/2014	57	Wet	Arable, scrub, hedge, SI	Presence possible although not confirmed	N (Steep banks)	Presence possible although not confirmed	Good	3	Moderate	2	Never	Y	Ditch flows into 58 so has newt potential and could require limited survey. Pools in various places. Rabbit burrows hidden by vegetation. 57 and 58 provide good water vole habitat.
24/04/2014	TT	Dry	Arable, hedge	n/a	N (No need-dry)	n/a	Poor/moderate	n/a	n/a	n/a	Frequently (DRY)	N	Close proximity to 57/58 which could support newts.
24/04/2014	61	Dry	Arable, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Not wet as stated on maps.
24/04/2014	*BB	Dry	Arable, hedge, A14	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Evidence held water over winter.
24/04/2014	LL	Dry	IG, road, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Wet in patches but very shallow and unlikely to support water for much longer.
24/04/2014	48	Dry	IG, hedge, SI	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Not wet as stated on maps and non-existent in places. Becomes wet further away from road. Wet section noted as 48a.
24/04/2014	48a	Wet	Arable and hedge	Likely absent (Shallow)	N (Steep banks, too shallow)	Confirmed-pair of mallards	Poor	0	Moderate	0	Sometimes	N	Recently dredged- vegetation absent. Very shallow.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
24/04/2014	OO	Dry	Arable, BW, SI, hedge, road	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Few wet patches but predominantly dry. Ditch completely dry in next couple of weeks.
24/04/2014	KK	Dry	Road, BW, SI, arable	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
24/04/2014	*KK	Dry	Arable, road, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	New ditch not on map but runs south from ditch KK. Dredged recently like 48a.
24/04/2014	II	Dry	IG, road, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
24/04/2014	HH	Dry	IG, road, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
24/04/2014	GG	Dry	Arable, IG	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
24/04/2014	*GG	Dry	Arable, IG	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	New ditch on map but runs parallel to GG.
24/04/2014	EE	Dry	Arable, road, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Barely a ditch. Shallow depression mostly hedge.
25/04/2014	*27	Dry	Arable, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Not wet as stated on maps.
25/04/2014	*26	Wet (See notes)	Arable, A14	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	0	Poor	4	Sometimes	N	Wet around layby on A14 for approx. 50m. Likely to dry over spring/summer. Contains a lot of rubbish from A14.
25/04/2014	*Ra	Dry	Arable, A14	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	New ditch not on map. Located on western end of ditch *26.
25/04/2014	*R	Wet	Arable, A14	Likely absent	N	Likely absence	Poor	4	Poor	Hard to tell due vegetation cover	Sometimes	N	Cowslip on banks. Common reed dominant in ditch.
25/04/2014	*Ua	Dry	Arable, A14	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	New ditch not on map. Located adjacent to A14 east of ditch *27. Slight accumulation of water but likely to dry over spring/summer.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
25/04/2014	70	Dry	PBW, arable, urban (Cambridge services)	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Virtually non-existent towards A14 end.
25/04/2014	*30	Wet	PBW, SI, A14	Likely absent (Shallow)	N (Inaccessible)	Possible although not confirmed	Moderate	3/4	Moderate	1	Rarely	N	Inaccessible for netting because located close to A14 (H&S issues). English bluebell. Ditch also surveyed from eastern end.
25/04/2014	*36	Dry	Hedge, urban (Cambridge services), PBW	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Only partially wet. Very shallow and likely to dry completely over spring/summer.
25/04/2014	*W	Dry	Arable, road, SI	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Connects to *36. Wet in patches but likely to dry out completely over spring/summer.
25/04/2014	*V	Dry	Hedge, road, SI	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Additional photo ref 1271.
25/04/2014	*S												IGNORE- See 1/5/14 survey. Only briefly assessed on this date.
25/04/2014	79a	Wet	SI, BW, arable	Possible although not confirmed	N (Steep banks)	Possible although not confirmed	Good	0	Moderate	0	Sometimes	N	Not on maps but located west of Bar Hill Industrial Estate. Significant brook flowing NE towards A14. Still too shallow to support newts.
25/04/2014	79	Wet	BW, arable, A14	Likely absent (Shallow)	N (Too shallow)	Likely absence	Good	0	Moderate	0	Rarely	N	Flowing NE towards A14. Too shallow for newts.
25/04/2014	74	Dry	Arable, road, hedge	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Partially wet but likely to dry completely over spring/summer.
25/04/2014	75	Dry	Arable, road, hedge	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Partially wet but likely to dry completely over spring/summer. Dry ditch located parallel to 75 and 76 on other side of road.
25/04/2014	76	Wet	Arable, SI, amenity	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	1	Moderate	1	Frequently	N	Shallow and likely to dry completely over spring/summer.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
25/04/2014	77	Wet	BW, SI, arable	Likely absent (Shallow)	N (Too shallow)	Likely absence	Good	0	Moderate	1	Frequently	N	Flows NE towards A14. Unlikely to hold water over spring/summer.
25/04/2014	73	Wet	Arable, A14, amenity	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	3	Poor	1	Frequently	N	Shallow and likely to dry completely over spring/summer.
25/04/2014	72	Wet	Arable, A14, SI, Scrub	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	4	Moderate	Hard to tell due vegetation cover	Frequently	N	Shallow and likely to dry completely over spring/summer.
25/04/2014	71	Wet	SI, arable, hedge	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	4	Moderate	Variable (1 to 3)	Rarely	N	Brook flowing NE towards A14.
25/04/2014	81	Wet	SG, arable, road	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	0	Can't assess due to veg. cover.	Hard to tell due vegetation cover	Sometimes	N	Shallow and likely to dry completely over spring/summer.
25/04/2014	82	Wet	Road, arable, amenity	Likely absent	N (Inaccessible)	Likely absence	Poor	3	Poor	3	Sometimes	N	Ditch continues further towards A14 than shown on maps. Area shown as wet on map dry. Ditch and banks recently cleared.
25/04/2014	83	Wet	Arable, road.	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	3	Can't assess due to veg. cover.	Hard to tell due vegetation cover	Frequently	N	Shallow and likely to dry completely over spring/summer.
01/05/2014	Ra	Dry	Arable hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Dry throughout. New ditch not on map.
01/05/2014	Rb	Wet	Arable hedge	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	0	Moderate	1	Sometimes	N	Several areas where water accumulates. Part of ditch dry. New ditch not on map.
01/05/2014	*O	Wet	BW, arable, hedge	Possible although not confirmed	N (Too shallow)	Likely absence	Poor	1	Moderate	0	Rarely	N	Not completely dry as stated on maps although small parts are dry. Flows eastwards. Part of West Brook where fish have been observed. As ditch *O continues westwards becomes drier. Ditch continues eastwards and does not turn northwards as stated on map.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
01/05/2014	*Oa	Dry	Arable, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	*Oa is new ditch positioned approx. south of R/*O junction. Slight pooling in places but unlikely to hold water over spring/summer.
01/05/2014	*Ob	Dry	Arable hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	New ditch positioned on the eastern section of ditch *O and running south.
01/05/2014	Sa	Wet	Arable, amenity, hedge, farm buildings	Likely absent (Shallow)	N	Likely absence	Poor	1	Moderate	1	Sometimes	N	New ditch not on map but located on west side of track to farm. Continues eastwards to north of farm. Shaded by terrestrial plant species. Ditch labelled S on map is missing.
01/05/2014	Sb	Dry	Arable, amenity, hedge, farm buildings	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Note ditch S does not exist. Sb is a new ditch on east side of track/access to farm.
01/05/2014	T	Wet	Arable, amenity, hedge, farm buildings	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	1	Moderate	0	Sometimes	N	Holds some water but likely to dry out over spring/summer. Narrow steep sided banks.
01/05/2014	V	Wet	Road, arable, hedge	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	4	Moderate	0	Sometimes	N	Shallow will probably dry out over spring/summer.
01/05/2014	U	Wet	Road, arable, hedge	Likely absent (Shallow)	N (Too shallow)	Likely absence	Poor	0	Poor	3	Frequently (DRY in places)	N	Shallow and will dry out over spring/summer. Dry towards north section near bridge.
01/05/2014	*28	Dry	Sl, road, arable, scrub, A14	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Area towards A14 wet but insignificant and likely to dry over spring/summer.
01/05/2014	*U	Dry	Sl, road, arable, scrub, A14	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
01/05/2014	*T	Dry	A14, BW, arable	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
01/05/2014	*S	Wet	Sl, road, arable, scrub, A14, BW	Fish observed in numerous areas (minnows/sticklebacks)	N (Inaccessible)	Likely absence	Good	1	Moderate	1	Sometimes	N	Several accumulations of water but likely to dry out over spring/summer. Some sections dry. Most pools have fish. Photo ref. 1278 has fish.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
01/05/2014	*30a	Wet	Sewage TW, arable, hedge	Possible although not confirmed.	N (Inaccessible)	1 Moorhen seen.	Moderate	0	Poor	4	Rarely	N	Further north ditch becomes less turbid. Flows, quite strongly at times, northwards. Note this is a new ditch not on maps located east of STW's at Swavesey.
01/05/2014	*30b	Dry	Sewage TW, arable, hedge	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Note new ditch running parallel to *30a
01/05/2014	*29	Wet	Arable, SI and Hedge	Possible although not confirmed	N (Inaccessible)	Possible although not confirmed	Moderate	1	Poor	2	Never/ Rarely	N	Flowing north with riffles in places. Significant brook.
01/05/2014	*X	Dry	Farm buildings, arable, SI/PBW	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Wet patches likely to dry out over spring/summer. Dominant amount of terrestrial vegetation. Narrow and shallow
02/05/2014	*31	Wet	Arable, amenity, hedge, PBW	Confirmed presence (See notes)	N (Inaccessible)	Possible although not seen	Moderate	1	Moderate		Rarely	N	Ditch is suitable for torchlight surveys but flowing water and presence of fish suggest not suitable. Tadpoles also noted, gravel riffles in places. This is a brook.
02/05/2014	*31a	Dry	Arable, Line of trees, PBW	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
02/05/2014	*31b	Dry	Arable, PBW	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Not shown on map on Slate Hall Farm. Occasional touch of water
02/05/2014	YYa	Wet	Arable, SI, BW, Scrub	Too shallow	N (Large coverage of vegetation in ditch)	Unlikely	Good	5	Moderate	0	Sometimes	N	New ditch by NIAB reservoir. Zig zags around reservoir. Tadpoles noted.
02/05/2014	YYb	Dry	Arable, SI, BW, Scrub	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	New ditch not on map. Near NIAB reservoir, joins YYa.
02/05/2014	YYc	Dry	Arable, SI, BW, Scrub	n/a	N (No need-dry)	n/a	Arable, BW, SI, scrub	n/a	n/a	n/a	Frequently (DRY)	N	Continues around corner in NW direction. Joins YYa.
02/05/2014	ZZb	Wet	Arable, TR, cleared woodland, SI	Small fish observed	N (Inaccessible)	Likely absence	Poor	2	Poor	3	Sometimes	N	Inaccessible.
02/05/2014	ZZ	Dry	Arable, SI, A14	n/a	N (Inaccessible)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Recently cleared along with roadside embankment.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
02/05/2014	Zza	Wet	Arable, SI, A14	Small fish observed in deepest pools	N (Inaccessible)	Likely absence, too shallow	Moderate	1	Moderate	0	Rarely	N	NB: Ditch YY continues westwards under bridge. Macrophyte cover higher on south side.
02/15/14	YY	Dry	Arable, Amenity, hedge BW, scrub		N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Part of ditch covered by hedge.
02/05/2014	94	Dry - wet towards eastern end	A14, IG, PBW	Likely absence (shaded)	N (Inaccessible)	Likely absence	Moderate	1	Poor	1	Sometimes	?	No known GCN populations in the area. Most of ditch dry but wet at eastern end near Histon roundabout and slip road beyond large road culvert.
02/05/2014	81	Dry	A14, IG, Farm yard, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
02/05/2014	AAA	Dry	BW, Hedge, IG, TR, Scrub	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
02/05/2014	86	Dry	Arable, IG, BW	n/a	N (No need-dry)	n/a	Good	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
02/05/2014	*33	Wet	A14, BW, IG, scrub	Likely absence	N (Inaccessible)	Likely absence	Moderate	0	Poor	2	Rarely	N	Pools at culvert, dry in other sections, predominantly dry.
02/05/2014	*Y	Dry	Arable, PBW, A14	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
02/05/2014	*37	Dry	PBW, Arable, SI	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
07/05/2014	O	Dry	Arable, SI, hedge, IG	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Damp in places, north section has small amount of water. North end of ditch has good terrestrial habitat. Pond 38*NI is located along north end of ditch.
07/05/2014	P												Does not exist, hedge only.
07/05/2014	M	Dry	Arable	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
07/05/2014	Ma	Dry	Arable and hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	According to Mr Carr, this ditch carries the water from the farm buildings, so could be wet after heavy rain.

Survey date	Ditch ID	Wet or dry	Surrounding habitats	Presence/ likely absence of fish	Ditch netted	Presence/ likely absence of waterfowl	Terrestrial habitat for GCN	Macrophyte cover	Water quality	Water turbidity	Drying	Further survey	Additional notes - rationale for not sampling further
07/05/2014	59	Wet	Hedge, arable, road, scrub, SI	Fish observed	N (Inaccessible)	Mallard duck	Good	3	Moderate	1	Never	Possibly	Probably part of Ditch 58, so likely to be a brook. Wide watercourse with potential for newts (subject to both fish and water fowl presence). Very high steep banks make accessibility difficult, only torching possible from 2 vantage points. Beside a minor road so H&S issues.
07/05/2014	AS3	Dry	A14 slip road, Arable, BW, hedge	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Some tree clearance along roadside ditch.
07/05/2014	*118	Dry		n/a	N (No need-dry)	n/a		n/a	n/a	n/a	Frequently (DRY)	N	Ditch dry.
07/05/2014	AS1	Dry	Arable, hedge, lane, scrub, BW	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Ditch adjacent to Washpit Lane, Girton.
07/05/2014	AS2	Dry	Arable, hedge, lane, scrub, BW	n/a	N (No need-dry)	n/a	Moderate	n/a	n/a	n/a	Frequently (DRY)	N	Ditch adjacent to Washpit Lane, Girton.
07/05/2014	AS4	Wet	Arable, SI, Hedge, PBW	Small fish seen	N	Likely presence but not seen	Moderate	1	Moderate	0	Never	N	Brook on Grange Farm (Chivers), Girton. Shallow in places, some significant pools, shaded by trees in places.
07/05/2014	AS5	Dry	Arable, SI, PBW, hedge	n/a	N (No need-dry)	n/a	Poor	n/a	n/a	n/a	Frequently (DRY)	N	Some areas with wet shallow pools but expected to totally dry out over spring. Considered a dry ditch.

Surveyor B Survey Results

Survey date	Ditch ID	Wet or dry	Rationale for not sampling further
13/05/2014	+29	Wet	Ditch completely dry on southern end with remaining section likely to dry out in next few weeks. Too shallow.
13/05/2014	+29a	Dry	Dry ditch on southern end of +29
13/05/2014	+30	Wet	Small amount of water unlikely to last over summer. Significant dredging has taken place
13/05/2014	+30a	Wet	New ditch on eastern side. Unlikely to hold water over the season.
13/05/2014	+35	Wet	Dredged recently therefore vegetation cover absent. Unlikely to hold water over season.
13/05/2014	+36	Dry	Ditch dry.
13/05/2014	+39	Wet	Ditch flows northeast to southwest. Becomes wider and deeper to the northeast. Recently dredged (photo 773). Devoid of vegetation. Slow moving water. Fish population highly likely. Waterfowl probable. Connected to same length as ditch +2. No further survey required.
13/05/2014	+2	Wet	Connect to ditch +39. Fish observed. Waterfowl probable but not seen. No further survey required.
13/05/2014	+45	Dry	Ditch dry.
13/05/2014	+46	Dry	Ditch dry.
13/05/2014	+40	Wet	Connected to +2 so high likelihood of fish population
13/05/2014	+41	Wet	Connected to +2 so high likelihood of fish population
13/05/2014	+43	Dry	Ditch dry.
13/05/2014	+3	Dry	Ditch dry.
13/05/2014	++A	Wet	Photo of pond (Ref. 7822) Unlikely to hold water for duration of season
13/05/2014	++E	Dry	Ditch dry.
13/05/2014	+42	Wet	Will dry out in places but holds significant amount of water around bend. Water not turbid therefore suitable for torching.
13/05/2014	+50	Dry	A little moisture in places but will dry out.
13/05/2014	+47a	Dry	Ditch dry.
13/05/2014	+47	Dry	Ditch dry.
13/05/2014	+9	Wet	Brook. Flows north easterly. Fast flowing. Fish presence highly likely.
13/05/2014	+6	Wet	Connected to ditch *O which had high abundance of fish.
13/05/2014	+53	Dry	Has significant accumulation of water on southern end but has fish present. Water turbid.
13/05/2014	+53a	Dry	New ditch not on map joins onto ditch +53

Survey date	Ditch ID	Wet or dry	Rationale for not sampling further
13/05/2014	+12	Wet	Unlikely to hold water for duration of season
13/05/2014	+80	Wet	Very shallow. Recently dredged. Likely to dry out in next few weeks.
13/05/2014	+113	Wet	Very shallow. Recently dredged. Likely to dry out in next few weeks.
14/05/2014	+51	Dry	Ditch dry.
14/05/2014	++G	Dry	Ditch dry.
14/05/2014	++H	Wet	Fast flowing brook. Very likely fish presence although not observed.
14/05/2014	++I	Wet	Fast flowing brook. Very likely fish presence although not observed.
14/05/2014	+117	Wet	Covered in vegetation. Existing water likely to dry out.
14/05/2014	+107	Dry	Ditch dry.
14/05/2014	+108	Dry	Ditch dry.
14/05/2014	+17	Wet	Significant flow north easterly. Links up with +19 on other side of A14. Fish population very likely. Labelled Beck Brook on OS maps.
14/05/2014	+16	Dry	Ditch dry.
14/05/2014	+15	Dry	Ditch dry.
14/05/2014	+83	Wet	Shallow and not likely to hold water throughout season.
14/05/2014	+81	Dry	Ditch dry.
14/05/2014	+82	Dry	Access information incorrect. Actually located in crematorium with GCN ponds. Photos taken to show lack of suitability.
14/05/2014	+95	Dry	Small amount of pooled water on east end will dry out.
14/05/2014	+98	Dry	Very shallow and will dry out in next few weeks.
14/05/2014	+120	Wet	Fish presence confirmed by staff at Huntingdon Road facility (University of Cambridge). Fast flowing.
14/05/2014	+20	Dry	High vegetation cover. Dry. Pond on top of ditch (Photo ref. 797)
14/05/2014	+97	Dry	Ditch dry.
14/05/2014	+90	Dry	Ditch dry.
14/05/2014	+91	Dry	Ditch dry.
14/05/2014	+92	Wet	Very shallow and likely to dry out over season.
14/05/2014	+94 and +21	Wet	+91 & +21 appear to be same ditch. Recently dredged. No macrophyte coverage. Remaining water will dry out next few weeks.
14/05/2014	+96	Dry	Some pools but predominantly dry. Pools will dry out over next few weeks.

Survey date	Ditch ID	Wet or dry	Rationale for not sampling further
14/05/2014	+109	Dry	Ditch dry.
14/05/2014	+110	Dry	Heavily covered with scrub. Looks dry although impossible to access (next to A14).
14/05/2014	+111	Dry	Ditch dry.
14/05/2014	+122	Dry	Ditch dry.
15/05/2014	+38	Dry	Ditch dry.
15/05/2014	++C	Dry	Ditch dry.
15/05/2014	++B	Dry	Ditch dry.
15/05/2014	+7	Dry	Ditch dry.
15/05/2014	+56	Dry	Ditch dry.
15/05/2014	+58	Wet	Insignificant amount of water which is likely to dry out in next few weeks. Highly eutrophic in places. Connected to lake so highly likely to have fish population. High macrophyte coverage.
15/05/2014	+57	Dry	Ditch dry.
15/05/2014	R	Dry	Ditch dry.
15/05/2014	+5	Dry	Ditch dry.
15/05/2014	+52	Dry	Japanese knotweed by ditch
15/05/2014	+5	Dry	Photographed to show impact of dredging on ditch quality. Recently dredged- no vegetation present. Small section with shallow water which will dry out in next few weeks.
15/05/2014	++O	Wet	Flows southerly towards A14. Sticklebacks present. Waterfowl (mallard) present. Turbid. Significant flow.
15/05/2014	++P	Dry	Ditch dry.
15/05/2014	++N	Dry	Not really a ditch.
15/05/2014	+115	Dry	Occasional insignificant shallow pooling.
15/05/2014	+114	Dry	Ditch dry.
15/05/2014	*44	Dry	Assessed from a distance due to access issues.
15/05/2014	*43	Dry	Inaccessible due to scrub.
15/05/2014	*42	Dry	Ditch dry.
15/05/2014	*118	Dry	Assessed with AS but no record made. Washpit Brook which is fast flowing and has probable fish presence.
08/04/2014	N51 (Ditch)	Wet	Drainage ditch on Welbrook Way off Girton Road. Fish likely to be absent. Waterfowl observed (minor). Moderate quality terrestrial habitat. No macrophyte cover. Dries frequently. Further survey recommended.
13/05/2014	84	Wet	Cambridge Road. Further survey recommended.

Annex 5: Weather conditions during surveys

Date	Max-min overnight air temperature (°C)	Rainfall within last 24 hours	Wind speed	Ground conditions
22/04/2013	pm: 12, am: 12	None	Still	Dry
23/04/2013	pm: 15.5, am: 14	None	Still	Dry
24/04/2013	pm:19, am: 14	None	Light	Dry
25/04/2013	pm: 20, am: 8	None	Light	Dry
29/04/2013	pm: 17, am: 8	None	Light	Dry
30/04/2013	pm: 11, am: 10	None	Still	Dry
01/05/2013	pm: 10, am: 6.5	None	Light	Dry
02/05/2013	pm: 12, am: 11	None	Still	Dry
07/05/2013	pm: 15.5, am: 10	None	Light	Dry
08/05/2013	pm: 13, am: 11	None	Still	Dry
09/05/2013	pm: 12, am: 11	Light	Strong	Dry
10/05/2013	pm: 15 am: 10	Light	Still	Damp
13/05/2013	pm: 10, am: 7	Light	Still	Damp
18/05/2013	pm: 13, am: 13	Light	Still	Damp
19/05/2013	pm: 15, am: 11.5	None	Light	Dry
20/05/2013	pm: 19, am: 16	None	Still	Dry
21/05/2013	pm: 11 am: 11	None	Light	Dry
22/05/2013	pm: 11, am: 6	Light	Still	Damp
23/05/2013	pm: 6.5, am: 6	Light	Still	Damp
26/05/2013	pm: 8.5, am: 6	None	Still	Dry
28/05/2013	pm: 13, am: 11	None	Still	Dry
29/05/2013	pm: 10, am: 10	None	Light	Dry
30/05/2013	pm: 13, am: 12	None	Still	Dry
31/05/2013	pm: 16, am: 12	None	Still	Dry
03/06/2013	pm: 18, am: 13	None	Light	Dry
06/06/2013	pm: 20, am: 16	None	Still	Dry
11/06/2013	pm:13, am: 16	None	Light	Dry
12/06/2013	pm: 16, am: 15	None	Moderate	Dry
13/06/2013	pm: 17, am: 14	None	Light	Dry
14/06/2013	pm: 17, am: 14	None	Light	Dry
17/06/2013	pm: 20.5, am:17	None	Still	Dry
31/03/2014	Max 14, Min 10	None	Still	Dry
01/04/2014	Max 14, Min 7	None	Still	Dry

Date	Max-min overnight air temperature (°C)	Rainfall within last 24 hours	Wind speed	Ground conditions
02/04/2014	Max 14, Min 8	Light	Light	Damp
03/04/2014	Max 15, Min 5	None	Light	Dry
08/04/2014	Max 31, Min 7.	None	Still	Dry
09/04/2014	pm: 11.3, am: 8.4	None	Still	Dry
22/04/2014	Max 15, Min 5	Light	Light	Dry
23/04/2014	Max 13, Min 8	None	Still	Damp
24/04/2014	Max 13, Min 5	None	light	Damp
28/04/2014	pm:12	Light	Still	Dry
29/04/2014	pm:13	None	Still	Dry
30/04/2014	pm:13, am:10	None	Still	Dry
31/04/2014	pm:14.3	None	Still	Dry
01/05/2014	Max 14, Min 7	None	Still	Dry
06/05/2014	Max 16, Min 10	None	Light	Dry
07/05/2014	Max 15, Min 10	Heavy	Moderate	Dry
08/05/2014	Max 17, Min 9	Heavy	Light	Damp
12/05/2014	Max 11, Min 5	Heavy	Light	Dry
13/05/2014	Max 14, Min 5	None	Still	Dry
14/05/2014	Max 20, Min 5	None	Still	Dry
15/05/2014	Max 11, Min 5	None	Still	Dry
23/05/2014	Max 13, Min 8	None	Still	Damp
27/05/2014	11	Heavy	Still	Wet
28/05/2014	14	None	Still	Dry
29/05/2014	13	Light	Still	Damp
02/06/2014	Max 17, Min 15	None	Still	Dry
03/06/2014	Max 16, Min 10	Light	Light	Damp
04/06/2014	pm:10	Light	Moderate	Damp
09/06/2014	Max 19, Min 13	Light	Light	Damp
10/06/2014	Max 12, Min 8	None	Still	Dry
11/06/2014	Max 13, Min 9	None	Still	Dry
12/06/2014	12	None	Still	Dry

Annex 6: Methods used for each waterbody during survey

Survey type	Visit 1				Visit 2				Visit 3				Visit 4				Visit 5				Visit 6			
	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net
1		X	X	X	X	X		X	X	X		X	X	X		X								
1a		X	X	X	X	X		X	X	X		X	X	X		X								
1b		X	X	X	X	X		X	X	X		X	X	X		X								
1c		X	X	X	X	X		X	X	X		X	X	X		X								
2		X	X	X	X	X		X	X	X		X	X	X		X								
3a	X	X	X	X	X	X	X	X	X	X		X	X	X		X								
3b	X	X	X	X	X	X	X	X	X	X		X	X	X		X								
3d	X	X		X	X	X	X	X	X	X		X	X	X		X								
3e	X	X		X	X	X		X	X	X		X	X	X		X								
3f	X	X	X	X	X	X		X	X	X		X	X	X										
4	X	X	X	X	X	X		X	X	X		X	X	X		X								
5		X			X	X		X		X		X	X	X										
6	X	X							X	X			X	X										
6a		X			X	X		X	X	X			X	X										
6b	X	X			X					X														
7	X	X		X	X	X		X	X	X		X	X	X										
8	X	X			X	X		X																
9	X																							
10	X	X		X	X	X		X	X	X		X	X	X										
11	X	X		X	X	X		X	X	X		X	X	X										
11a		X			X																			
12e	X	X			X	X		X																
13	X																							
14		X			X	X			X	X		X												
14a		X			X		X		X		X		X		X	X	X				X		X	
14b	X				X				x			X	X				X				X			
14c	X				X				X			X	X				X				X			
14d	X				X				x			X	X				X				X			
14e	X				X				X			X	X				X				x			

Survey type	Visit 1				Visit 2				Visit 3				Visit 4				Visit 5				Visit 6			
	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net
14f	X	X			X	X			X	X			X	X			X	X			X	X		
15a	X	X			X	X			X	X			X	X			X							
15b	X	X			X	X			X	X			X	X			X							
16	X	X		X	X	X		X	X	X		X	X	X		X								
17	X	X		X	X	X		X	X	X		X	X	X		X								
21	X	X		X	X	X			X	X			X	X			X	X			X	X		
22	X	X		X	X	X		X	X	X			X	X			X	X			X	X		
23b	X	X		X	X	X		X	X	X		X	X	X		X								
23c	X	X		X	X	X		X	X	X		X	X	X		X								
24	X	X		X	X	X		X	X	X		X	X	X		x								
26	X	X		X	X	X		X	X	X		X	X	X		X								
28	X	X		X	X	X		X	X	X		X	X	X		X								
29	X	X		X	X	X		X	X	X		X	X	X		X								
30	X	X	X		X	X		X	X	X	X		X	X										
31	X				X	X			X	X			X	X		X	X	X			X	X		
31a	X	X			X	X				X	X			X	X		X							
31b	X	X			X	X				X	X			X	X		X					X		
32	X	X		X	X	X		X	X	X			X	X			X	X			X	X		
33		X				X				X				X			X				X			
34	X		X	X	X	X			X		X			X			X				X			
36	X	X	X		X	X		X	X	X	X		X	X										
37	X	X	X		X	X		X	X	X	X			X										
38	X	X	X		X	X	X		X	X		X	X	X		X								
40	X	X			X	X			X	X			X	X										
41	X			X	X			X	X			X	X			X								
42	X	X			X	X			X	X			X	X										
43	X				X				X				X											
44	X	X			X	X			X	X			X	X										
44a	X	X			X	X			X	X			X	X										
44b	X	X			X	X			X	X			X	X										
45	X	X	X	X	X	X	X	X	X	X	X		X	X	X									
46	X		X	X	X		X	X	X		X	X	X		X	X								
47	X			X	X			X	X			X	X			X								

Survey type	Visit 1				Visit 2				Visit 3				Visit 4				Visit 5				Visit 6			
	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net
48	X	X	X	X	X	X		X	X	X	X		X	X		X								
51	X	X		X	X	X		X	x	X		x	X	X	X									
51a	X			X	X			X	X			X	X			X								
51b	X		X	X	X			X	X				X											
52	X	X		X	X	X		X	X	X		X	X	X		X	X	X		X	X	X		X
52a	X			X	X			X	X			X	X			X	X				X			
52b	X	X		X	X	X		X	X	X		X	X		X				X	X				X
52c	X	X																						
53	X	X		X	X	X		X	X	X	X	X	X	X		X								
54	X	X			X	X																		
N1	X		X		X		X					X				X				X				
N1a	X		X	X	X	X	X		X		X		X		X									
N1b	X	X		X	X	X		X	X	X			X	X			X	X			X	X		
N2	X		X	X																				
N2a	X		X	X																				
N2b	X		X	X																				
N6	X	X	X		X	X	X			X	X	X		X	X	X								
N21	X	X	X	X																				
N23	X		X	X																				
N24	X		X	X																				
N26	X	X		X	X	X		X	X	X		X	X	X		X								
N28	X	X	X	X	X	X			X	X			X	X			X	X			X	X		
N30a	X	X	X		X	X	X		X	X	X		X	X	X									
N32	X	X			X	X			X	X			X	X			X				X	X		
N32A	X	X		X	X	X		X	X	X		X	X	X		X								
N33	X	X	X		X	X	X		X	X	X			X	X									
N38	X	X	X																					
N39	X	X		X	X	X		X	X	X		X	X	X		X								
N39A	X	X		X	X	X			X	X			X	X			X	X			X	X		
N39B	X	X		X	X	X			X	X			X	X			X	X			X	X		
N39C	X	X			X	X			X	X			X	X			X	X			X	X		
N40	X	X		X	X	X			X	X			x	X			X	X			X	X		
N41	X	X			X	X			X	X			X	X			X	X			X	X		

Survey type	Visit 1				Visit 2				Visit 3				Visit 4				Visit 5				Visit 6							
	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net	Torch	Trap	Egg	Net				
N41a	X	X			X	X			X	X			X	X			X	X			X	X			X	X		
N42	X	X			X	X			X	X			X	X			X	X			X	X			X	X		
N43	X	X		X	X	X		X	X	X		X	X	X			X	X										
N43a	X	X			X	X			X	X			X	X			X	X										
N51	X	X		X	X	X			X	X			X	X		X												
N55	X	X		X	X	X		X	X	X		X	X	X		X												
N56	X			X	X				X																			
12a	X	X		X	X	X		X	X	X		X	X	X		X												
12b	X	X		X	X	X		X	X	X		X	X	X	X													
12c	X	X	X		X	X		X	X	X		X	X	X	X		X											
25	X	X		X		X		X		X		X		X		X												
25a		X		X		X		X		X		X		X		X												
56	X	X	X		X	X	X		X	X	X		X	X	X													
58	X	X		X	X	X		X	X	X		X	X	X		X												
Ditch*16	X		X		X		X		X				X															
Ditch 51	X		X		X				X				X															
Ditch N51	X		X		X																							
Ditch 54	X				X				X				X															
Ditch 57/58	X				X				X				X															
Ditch 84	X	X		X	X	X		X		X	X	X			X	X												
Ditch +42	X				X				X																			

Annex 7: Survey constraints for each waterbody

Pond number	Reason for incomplete survey or non-compliant survey
5	Unable to torch on first visit as access code to gate did not work. Visit three, due to wind.
6a	Limited access for bottles and netting, very steep banks and large fish presence.
9	Dry on second visit 2013. Access constraints 2014. Full 2013 WSP data available (WSP pond 1).
8	Two visits by Atkins, Full 2013 WSP survey data available (WSP pond 3).
11a	Found late in season.
12e	Access constraints.
13	Access - H&S 2014 (one visit by Atkins - no GCN). Too shallow to trap.
14	Access - H&S 2014 (three visits by Atkins - no GCN). Abandoned after visit 3 due to dead water shrew)
14a	Torched only due to being concrete lined.
14b	Torched only due to being concrete lined.
14c	Torched only due to being concrete lined.
14d	Torched only due to being concrete lined.
15a	Precautionary bottle trapping and torching carried out although considered unsuitable.
15b	Precautionary bottle trapping and torching carried out although considered unsuitable.
31	Fenced off, no access for trapping whole pond.
31a	Unable to torch due to duckweed cover.
33	Difficult access along banks, six visits done.
34	Steep sides, difficult access for traps.
40	Precautionary bottle trapping and torching carried out although considered unsuitable.
41	Precautionary torch and egg search done as far as possible as considered unsuitable for GCN.
42	Earthworks directly to east of pond restricting access to pond shoreline in this area.
43	Precautionary torching and egg search conducted although considered unsuitable.
44	Precautionary bottle trapping and torching carried out although considered unsuitable.
44a	Limited aquatic vegetation to egg search.
47	Too shallow to bottle trap.
51a	Too shallow for bottle trapping, and netting on visit two. Visit 4 entirely dry
51b	Too shallow for bottle trapping. Too shallow for netting on visit two. Almost completely dry by visit 3. Visit 4 entirely dry.

Pond number	Reason for incomplete survey or non-compliant survey
52a	Too shallow for bottle trapping, too much debris for netting to be effective.
52b	Bottle trapping ceased after visit three: animal welfare, large numbers found in two traps.
52c	Found late in season.
53	Found late in season.
54	Found late in season 2013 - outside of relevant buffer 2014.
N1a	Concrete lined - Unsuitable for trapping.
N2	Only surveyed once- pond dry on visit 2.
N2a	Only surveyed once- pond dry on visit 2.
N2b	Only surveyed once- pond dry on visit 2.
N33	Unable to torch on fourth visit due to weather.
N38	A14 acts as barrier to dispersal, surveys stopped.
N43	Visit 6 not completed due to cattle, calves and bull in field.
N43a	Visit 6 not completed due to cattle, calves and bull in field.
25	Unable to torch due to duckweed cover and no emergent vegetation.
25a	Unable to torch due to duckweed cover and no emergent vegetation.
N56	Torch only as concrete lined and no emergent vegetation.
Ditch*16	Torch only due to very steep sided ditches.
Ditch 51	Torch only due to very steep sided ditches.
Ditch N51	Only surveyed twice, ditch dry on visit 3.
Ditch 54	Torch only due to very steep sided ditches.
Ditch 57/58	Torch only due to very steep sided ditches.
Ditch 84	Only two survey methods used on visit 4 as water levels had dropped significantly.
Ditch +42	Torch only as access difficult to net and trap, no access on visit 4 due to H&S, young cows in field.