

Tension Control Bolts, Clywedog Road South, Wrexham LL13 9XS

LONG-TERM MANAGEMENT, SURVEILLANCE AND WARDENING PLAN

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[ERAP (Consultant Ecologists) Ltd ref: 2019-079d]

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Document Control

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1.0 INTRODUCTION

1.1 Background and Rationale

- 1.1.1 Planning approval has been granted (Wrexham Council references 2019/0341 and 2020/0094) for the construction of three extensions (Extension A (30,190ft² / 2804m²), Extension B (12,204ft² / 1134m²) and Extension C (1752ft² / 163m²)) to two industrial warehouse buildings with additional parking, service yard and hard-landscaping.
- 1.1.2 Pond 1, located on site, supports a medium population size class of great crested newt (GCN) and terrestrial habitats comprising of coarse grassland within the Ecological Mitigation Zone to the west of the buildings are favourable for use by sheltering GCN.
- 1.1.3 Although the majority of the extension works will be carried out on areas of hard-standing and habitats unsuitable for use by sheltering GCN the following impacts are identified:
 - a. Loss of 0.016ha of coarse grassland within 25 metres of Pond 1 to extend the service yard around Extension A;
 - b. Loss of 0.04ha of close mown grassland over 50 metres from Pond 1 (at Extensions B and C);
 - c. Temporary disturbance of aquatic habitats at Pond 1 and the terrestrial habitats around the margins of Pond 1 as the pond is excavated to a larger profile (increase of 95m³ required);
 - d. Risk of introduction of invasive plant species to the Ecological Mitigation Zone and Pond 1 during works;
 - e. Risk of harm to individual GCN during the construction period; and
 - f. Risk of harm to individual GCN during the operation of the site owing to the presence of drainage channels and tall kerbstones / physical barriers.
- 1.1.4 To mitigate for the identified impacts and ensure no adverse effect on the favourable conservation status of GCN at the site the following will be carried out under a Natural Resources Wales (NRW) European Protected Species Mitigation (EPSM) licence:
 - a. Toolbox talk to be provided to all relevant contractors;
 - b. Installation of a one-way temporary amphibian fence at the boundary between the Ecological Mitigation Zone and the Construction Area to remain in place for the construction period;
 - c. Hand and destructive search of the 0.04ha amenity grassland at Extension B and C;
 - d. 0.016ha section of coarse grassland to be affected by extension of hard-standing around Extension A to be strimmed to a height of 100mm (no lower). Area to be hand searched for amphibians and then removed (following a second / lower strim if needed);
 - e. Any detected amphibians to be carefully placed in a bucket and translocated immediately to suitable terrestrial habitats the Ecological Mitigation Zone on the opposite side of the one-way temporary amphibian fencing;
 - f. Prior to the construction of the hibernaculum the grassland will be strimmed to a height of 100mm height and hand searched for amphibians. Once the area and route for access is clear of amphibians the hibernacula will be constructed;
 - g. Route for the excavator (and dumper) to enter the Ecological Mitigation Zone and excavate Pond 1 to increase its capacity by 95m³ will be strimmed and hand-searched. Works at the pond will be carried out between October and January;

- h. The Aco drain will be installed with a mesh to avoid any hazards associated with GCN entering the drainage system; and
- i. The kerbs at the boundary between the extended hard-standing and the Ecological Mitigation Zone will accommodate 4 sections of dropped / battered kerbs to ensure any GCN that venture on to the hard-standing are able to return to the Ecological Mitigation Zone and are not obstructed by the kerbs.

1.1.5 In addition Conditions 5 and 6 of the planning permission state:

Condition 5: *No part of the development shall commence, to include any site clearance, until a long term management, surveillance and wardening plan has been submitted to an approved in writing by the local planning authority. The development shall be carried out strictly in accordance with the details as may be approved.*

Condition 6: *There shall be no changes to the management, surveillance or wardening of the approved habitat creation as required by condition 5 unless revised arrangements have first been submitted to and approved in writing by the Local Planning Authority.*

1.2 Purpose and Aim

1.2.1 This *Long-term Management, Surveillance and Wardening Plan* (hereafter referred to as the 'Plan') aims to satisfy the requirement of Condition 5 of the planning consent and the NRW licence. The Plan has been prepared in accordance with a scope provided by NRW and it aims to provide a comprehensive practical document that can be referred to and consulted by the Local Planning Authority, ecologists, the site / owner / operator, and their appointed contractors tasked to undertake the works detailed within the Plan.

1.3 Objectives

1.3.1 This Plan relates to all areas of retained habitats (i.e. the Ecological Mitigation Zone) within the site. It sets out the management intentions and the necessary operations required to manage the site in accordance with conservation objectives.

1.3.2 The Plan provides a comprehensive practical document that can be referred to and consulted by the Local Planning Authority, ecologists, the site owner / operator and their appointed contractors tasked to undertake the works detailed within the Plan.

1.3.3 The Plan has been prepared to include:

- a. Description and evaluation of features to be managed;
- b. Ecological trends and constraints on site that might influence management;
- c. Aims and objectives of management;
- d. Appropriate management options for achieving aims and objectives;
- e. Prescriptions for management actions;
- f. Preparation of a work schedule (including an annual work plan capable of being rolled forward over a 25-year period);
- g. Details of the body or organisation responsible for implementation of the plan; and
- h. Ongoing monitoring and remedial measures.

Assumptions

- 1.3.4 The Plan assumes that a suitable GCN strategy has been approved by the Local Planning Authority and a NRW EPSM licence has been granted and works have been implemented.

Review

- 1.3.5 This plan is a reviewable document that can be updated and amended as required. The work schedule at **Appendix 1** covers five years. After five years this plan will be reviewed and updated / extended as required to cover a 25 year period.

2.0 SCOPE

2.1 Habitats

- 2.1.1 The following habitats / features are covered under this Plan, refer to **Appendix 3**:

- Pond 1;
- Coarse grassland in the Ecological Mitigation Zone;
- Hibernaculum; and
- Hard landscaping (i.e. drains and kerbstones).

2.2 Responsibilities

- 2.2.1 The site owner / operator is responsible for arranging and completing the actions as set out in this Plan with guidance from an appointed ecologist, as needed.
- 2.2.2 It is the site owner's responsibility to ensure monitoring is completed as described, by appropriately qualified and experienced personnel, and that this monitoring informs the management of the habitats within the site including the implementation of remedial actions, as needed.

2.3 Site Operation

Health and Safety

- 2.3.1 The following precautions should be taken into consideration when carrying out the activities detailed within this Plan:
- a. Personnel working on site should make themselves aware of the location of any underground and above ground services and cables; and
 - b. Consideration must be given to vehicular and pedestrian use: roads and paths should be kept clear at all times, and potentially dangerous tools or machinery must not be left unattended.
- 2.3.2 Methods for reducing the potential site risks are well established and are common practice of competent contractors. The contractor is expected to identify the hazards associated with any maintenance operations proposed, together with an assessment of the risks involved and methods for reducing risks. The risk assessment should be recorded and retained for reference in the future if necessary.

Site Operatives

- 2.3.3 Where necessary, operations on site are to be carried out by suitably qualified operatives with appropriate safety clothing. Contractors, where relevant, are to adhere to the latest guidance on safe working practice, including information from the recognised industry body, the local authority and the government Health and Safety Executive.
- 2.3.4 Any appointed maintenance contractor is to carry out all operations with regard to the safety and welfare of the general public, the protection of private and public property, and the conservation of domestic and native flora and fauna, as well as maintenance of Statutory Services.

Disposal of Materials from Site

- 2.3.5 All rubbish, leaves, grass and general arisings removed from the site are to be checked for wildlife and deposited at an appropriately licensed tip.

Protected Species and Wildlife Legislation

- 2.3.6 All personnel working on site must be aware of the presence of wildlife and possibility of protected species at the site. Relevant wildlife legislation and information is appended at **Section 3.5**.

Bio-Security

- 2.3.7 To minimise the risk of introduction of invasive species to the site *and* the spread of invasive species around the site, all machinery / plant to be brought to the site must be clean.
- 2.3.8 Wheels / tracks of machinery / plant must have been pressure washed before use at the site.
- 2.3.9 No excessive remnant soil or plant material from other sites must be present on the machinery/plant or in the tyre treads as this may increase the risk of spread of none native and invasive plant species e.g. Japanese Knotweed, Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

3.0 MANAGEMENT AND MONITORING PRESCRIPTIONS

3.1 Pond 1

Objectives

- 3.1.1 Conserve the aquatic habitat (and associated terrestrial habitats) for great crested newt other wildlife including UK Biodiversity Action Plan (BAP) Priority Species e.g. Common Toad.
- 3.1.2 Control / eradicate non-native and invasive plant species, where necessary.

Monitoring of Status of Wildlife Pond

Timing and Frequency

- 3.1.3 The condition of the pond will be monitored biennial in accordance with the Wales GCN Monitoring Programme, refer to **Appendix 2**.

Responsibility

3.1.4 Monitoring will be carried out by the appointed ecologist.

Information to be Recorded

3.1.5 In accordance with the Wales GCN Monitoring Programme, refer to **Appendix 2**.

3.1.6 Any items requiring urgent attention / remedial action will be reported to the site owner / operator immediately.

3.1.7 Otherwise, the triggers listed in **Table 1**, below will be used to inform the need for the application of the management prescriptions describe below (or other works).

Table 1: Parameters to Trigger Whether Management of the Pond is Required

Factor	Level at which Remedial Management Action is Required	Suitable Management Actions
Water Retention / drying	Pond holds water to a depth no greater than 0.1 metres throughout 50% of its total area (unless an especially dry year).	Consider deepening the pond in winter (i.e. October to February inclusive)
Spread of native species which can become dominant (i.e. Bulrush)	Coverage of 25% or greater	Removal of Bulrush in thirds over three years until removed. Plant removal to be conducted in winter (i.e. October to February inclusive). Removed plants left on side of pond for two days to allow aquatic invertebrates to re-enter pond, see below.
Percentage shading	70% or greater shading	Sensitive removal of shading shrubs and trees. This may conflict with other management objectives. Mature trees casting shade should be retained over any shrubs casting shade, see below.
Presence of invasive plant species listed on Schedule 9 of the <i>Wildlife and Countryside Act 1981</i> (as amended)	Any presence	Immediate implementation of suitable invasive species management plan. Use of a specialist contractor to eradicate the species, see below.
Detection of fish	Any presence	Remedial actions, see below.
Presence of litter, debris, other pollution	Any present	Removal/clean up

Management and Maintenance Operations

Control of Willow / Scrub Encroachment

3.1.8 Willow encroachment within and around the pond will be controlled at no greater than 30% of the pond margins. This will be necessary to avoid willows removing water from the ground and causing the habitats to dry out.

- 3.1.9 When necessary, Willow and shrubs will be cut down to stump level with the use of hand tools in the late summer (outside the bird breeding season). Stumps will be treated with an approved herbicide to prevent re-growth. This may be an annual operation to keep Willows / scrub controlled.
- 3.1.10 Cut logs and branches may be used to make new dead wood habitat piles and hibernacula for use by sheltering amphibians.

Management of Aquatic and Emergent Vegetation

- 3.1.11 Invasive Bulrush will not be permitted to encroach over the pond. Removal of Bulrush will be carried out every three years or as required to maintain at least 75% open water at the pond.
- 3.1.12 Removal of Bulrush will only be carried out in the winter months (outside the amphibian breeding season). All removed material will be left in small piles around the ponds margins for 2-3 days prior to removal from site, this will permit aquatic invertebrates and any over-wintering larvae to return to the ponds.
- 3.1.13 Plants suitable for newt egg-laying will be conserved, for example Water Forget-me-not (*Myosotis scorpioides*), Floating Sweet-grass (*Glyceria fluitans*) and Great Willowherb (*Epilobium hirsutum*).

Removal of Invasive Species

- 3.1.14 The monitoring surveys will detect and report on the presence of invasive species at the ponds e.g. New Zealand Pygmyweed (*Crassula helmsii*) and Himalayan Balsam (*Impatiens glandulifera*) etc.
- 3.1.15 Current Environment Agency and Natural Resources Wales guidance will be consulted to obtain details of the most up-to-date methods of treatment of an invasive species. It will be essential to ensure that its treatment gives full consideration to the presence of Great Crested Newts.

Removal of Litter and Other Pond Debris

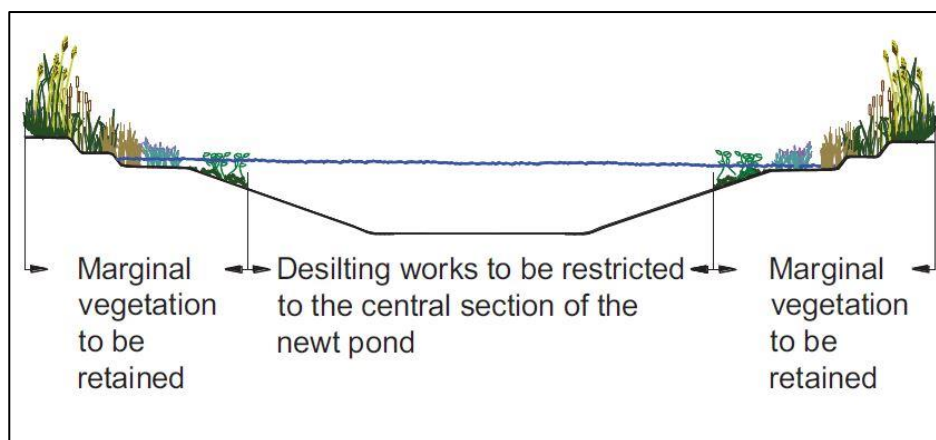
- 3.1.16 Removal of pond debris will be carried out. All debris / rubbish will be disposed of appropriately.

Detection of Fish

- 3.1.17 If fish are detected it will be the site owner / operator's responsibility to employ the assistance of an appropriate Fish Handler.
- 3.1.18 The Fish Handler will apply for and obtain the relevant Environment Agency consent forms permitting the method of fish removal (for example draining down and electro-fishing or seine netting) and the location for the receipt of the fish, as required.
- 3.1.19 Following removal of the fish the pond will be drained, outside the newt breeding season, and will be kept dry for a suitable period to ensure successful fish removal.

Desilting

- 3.1.20 Throughout the life of a pond an accumulation of plant matter and silt will gradually build up at the bed of the pond, reducing the overall pond depth. If monitoring suggests that water levels within the deepest area of the pond are likely to fall below 0.35 metre at any point during the amphibian breeding season (March to August), de-silting will be considered.
- 3.1.21 As presented at **Insert 1** below, only the central section of the pond is dredged, and the important marginal vegetation communities at the pond fringes are retained.



Insert 1: Pond de-silting diagram

- 3.1.22 Desilting will be undertaken by a long armed excavator. Entry and access to the pond will be limited to one point or section of bank. The top third to half of silt will be stored temporarily and replaced along the surface of the newly excavated pond to allow the invertebrate assemblage to repopulate the pond at a higher rate.
- 3.1.23 Where this operation may damage the adjacent grassland, a membrane will be used to protect the sward.
- 3.1.24 Desilting will be undertaken in the period November to January. If this is not viable due to ground conditions, a licence may be required from Natural England to exclude the pond prior to the breeding season to allow a spring or summer desilt.

Reporting

- 3.1.25 The results of the monitoring of the aquatic habitats, and the details of any management activities carried out in the previous 12 months, will be reported in the annual report for the site.

3.2 Hibernaculum

Objectives

- 3.2.1 Maintain the hibernaculum in a good state of repair to provide habitats to support the local wildlife.

Monitoring and Management

- 3.2.2 The hibernaculum will be inspected on an annual basis; repairs required will be carried out in accordance with the ecologist recommendations.
- 3.2.3 In the longer term, should the hibernaculum fall into a poor state of repair, advice from an ecologist should be sought before any repair works are carried out. Repair works must be undertaken at an appropriate time of the year to ensure that works do not disturb the fauna that they have been designed to support.

3.3 Coarse Grassland

Objectives

- 3.3.1 The aim of the grassland enhancement and management is to prevent the area succeeding to scrub vegetation, and provide a dense, tussocky sward favourable for use by foraging and sheltering amphibians.
- 3.3.2 Maximise flowering times to provide opportunities for feeding invertebrates.

Monitoring

- 3.3.3 Grassland areas will be inspected as part of the regular maintenance operations.

Management and Maintenance Operations

- 3.3.4 Remove any litter or leaves before cutting.
- 3.3.5 Cutting shall be undertaken annually with a flail mower or strimmer to a height no lower than 100mm, when flowering is over, annually during September to October. All cuttings shall be raked up and removed.
- 3.3.6 To retain a neat area around the roads and pavements, a 1 metre wide edge around the margins of the grasslands will be maintained a short grassland and will be mown once a fortnight during the growing season.
- 3.3.7 Observations about the general health of the grassland will be made during cutting.

3.4 Hard landscaping (i.e. drains and kerbstones)

Objectives

- 3.4.1 To ensure hard landscape features such as the Aco drains and kerbstones do not pose as additional hazards to amphibians.

Monitoring

- 3.4.2 Weekly inspections to ensure that materials are not stored or stockpiled to obstruct the dropped / battered kerbs that permit amphibian access from the hard-standing to the Ecological Mitigation Zone.
- 3.4.3 Inspections to ensure that the Aco drains are functional and the mesh to prevent amphibian access is intact.

Management and Maintenance

- 3.4.4 Ensure site owner / operator avoids the storage of items that would obstruct use of the dropped / battered kerbstones.
- 3.4.5 Repair / replace the Aco drains, as needed, if the mesh has deteriorated.
- 3.4.6 Maintain the interceptor that all surface water passes through before discharge to the pond.

3.5 Relevant Wildlife Legislation

Great Crested Newt

- 3.5.1 Great crested newt and their habitats are legally protected under the *Wildlife and Countryside Act 1981* (as amended) and the *Conservation of Habitats and Species Regulations 2017*. Under this legislation it is an offence to intentionally kill, injure or capture a great crested newt, deliberately disturb great crested newts and damage or destroy their habitats.

Breeding Birds

- 3.5.2 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended), whilst they are actively nesting or roosting. Section 1 of this Act, makes it an offence to kill, injure or take any wild bird, and to intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built. It is also an offence to take or destroy any wild bird eggs.
- 3.5.3 It is mandatory that management and maintenance actions that involve the pruning or removal of trees, shrubs, Ivy cover, Bramble scrub or other suitable breeding bird habitat are only carried out outside the bird breeding season, unless it can be adequately demonstrated by an ecologist that no breeding birds, active nests, eggs or fledglings are present in the area to be cleared. The bird breeding season typically extends between March to August inclusive.

3.6 Review of Management Plan

- 3.6.1 The annual maintenance/management reporting will contribute to the update and revision of this Plan. This is necessary to ensure the works carried out under the Plan are practicable, efficient, sustainable and ecologically-informed.

3.7 Competency Requirements for Habitat Management / Surveillance

- 3.7.1 Management and maintenance must only be carried out by a suitably qualified and experienced contractor.
- 3.7.2 Works that may affect GCN or involve the disturbance of GCN must only be carried out by a suitably licensed ecologist.

3.8 Tenure

- 3.8.1 If the site / land is sold or passed to a new owner / operator, this Plan will be passed with the property and the new owner will be responsible for implementation.

3.9 Reporting

- 3.9.1 Reporting will be provided via the Wales Great Crested Newt Monitoring Form and any requirements of the NRW licence.

4.0 REFERENCES

- Amphibian and Reptile Conservation, 2010. *Fish Control Methods for Great Crested Newt Conservation (England and Wales)*, Bournemouth: Amphibian and Reptile Conservation.
- Great Britain, 1981. *Wildlife and Countryside Act*. London: H.M.S.O.
- Great Britain, 2006. *Natural Environment and Rural Communities Act*. London: H.M.S.O.
- Great Britain, 2017. *The Conservation of Habitats and Species Regulations*. London: H.M.S.O.
- Langton, T. E., Beckett, C. L. & Foster, J. P., 2001. *Great Crested Newt Conservation Handbook*. Halesworth: Froglife.

5.0 APPENDIX 1: WORK SCHEDULE

5.1 Work Schedule

The Site Owner / Operator will be responsible for all actions

SECTION	HABITAT AND PRESCRIPTION	MONTH												TOTAL	YEARS	RESPONSIBILITY	COMMENTS / NOTES / PREREQUISITES
		J	F	M	A	M	J	J	A	S	O	N	D				
3.1	Pond 1																
	Monitoring of pond and completion of the Wales Great Crested Newt Monitoring Form				1									1	1, 3, 5	Ecologist appointed by site owner	Submission of results to Cofnod
	Remove Bulrush									1				1	3	Site owner	Bulrush to be removed outside amphibian breeding season..
	Scrub removal									1				1	As needed	Site owner	Removal of encroaching scrub as required. Works to be undertaken outside the nesting bird season.
	Appointment of Fish Handler and removal of fish													As required	As needed	Site owner	Under supervision of licensed ecologist. In accordance with current Environment Agency guidance.
	Reinstatement following fire, acute pollution or other major damage.													As required	As needed	Site owner	Under guidance of ecologist

SECTION	HABITAT AND PRESCRIPTION	MONTH												TOTAL	YEARS	RESPONSIBILITY	COMMENTS / NOTES / PREREQUISITES
		J	F	M	A	M	J	J	A	S	O	N	D				
	Control invasive species / blanket weed									1				1	As needed	Site owner	Where it is necessary, control should be undertaken under current Environment Agency and Natural Resources Wales guidance.
3.2	Hibernacula																
	Creation of new hibernacula as material becomes available										1			1	3	Site owner	-
	Reinstatement following fire, acute pollution or other major damage.													As required	As needed	Site owner	Under guidance of ecologist
3.3	Grassland																
	Litter pick			1	2	2	2	2	2	2	1			14	1-5	Site owner	
	Strim / flail grassland									1				1	1-5	Site owner	No lower than 100mm. Arisings to be removed.
	Removal / control of invasive / noxious species													As required	1-5	Site owner	Hand pull if appropriate Non residual herbicides may be used
	Cut grass within a 1 metre wide strip at the roads and pavement margins			1	2	2	2	2	2	2	2			15	1-5	Site owner	Arisings to be removed.
3.4	Hard landscape																
	Check paths for defects / repair			1	1	1	1	1	1	1	1			8	1-5	Site owner	As required
	Litter pick / sweep			1	2	2	2	2	2	2	1			14	1-5	Site owner	As required
	Check Aco drains			1	1	1	1	1	1	1	1			8	1-5	Site owner	Replace / repair as needed

SECTION	HABITAT AND PRESCRIPTION	MONTH												TOTAL	YEARS	RESPONSIBILITY	COMMENTS / NOTES / PREREQUISITES
		J	F	M	A	M	J	J	A	S	O	N	D				
	Check interceptor function and maintain										1			1	1-5	Site owner and their appointed contractor	-
3.6	Reporting / Review of Plan																
	Management plan to be reviewed and updated / revised as required.												1	1	1-5	Site owner and ecologist	Minimum 25 year period, Plan to be reviewed and revised to ensure funds are being spent appropriately. Frequency of visits may be increased / decreased as a result of monitoring.

6.0 APPENDIX 2: EXAMPLE MONITORING SHEET

Wales Great Crested Newt Monitoring Form V 1b

Introduction

This form has been adapted by Cofnod (North Wales Environmental Information Service) during April 2016, on behalf of Natural Resources Wales and the Amphibian and Reptile Conservation Trust. Data collected using this form should be entered onto the Cofnod Online Recording System www.cofnod.org.uk (please see separate Data Entry Guidance on how to do this, which is available from Cofnod and will be supplied separately to surveyors).

Sites and Sub-sites (ponds)

There is no need to enter any grid references onto this form, as a master list of sites and sub-sites (mostly ponds) is now held by Cofnod and includes standardised grid references. The PDF document 'Wales GCN Maps' (supplied with this form) shows the sites and their sub-sites on a series of maps. Please contact Cofnod to request additions to the list, or to report potentially incorrect location details.

When filling in any of the tables, please add the **pond numbers/codes** to the greyed out box at the top of the table. **NB:** They must match the relevant map given in the PDF document 'Wales GCN Maps' – please contact Cofnod with any issues relating to the pond locations or codes. If your ponds do not have codes then please list them under the notes section of the relevant table and assign a number to each, which you can use to fill in the Pond Number/Code boxes.

Printing the forms

The tables on pages 2, 5 and 6 allow you to enter details for up to ten ponds or other sub-sites, therefore if your site contains more ponds you will need to print out/copy multiple copies of these pages. The table on Page 4 is an exact copy of that on page 3, and you will need as many copies of this table as you have ponds. Pages 5-6, which allow you to record Habitat Suitability Index information, will only be required for one of your annual visits, and should be completed in conjunction with the document: **Great Crested Newt Habitat Suitability Index**.

Please contact Cofnod with any queries: contactus@cofnod.org.uk, 01248 672603.

Step 1: Details of Site Survey			
Site Name See Appendix 1			
Date of Visit			
Surveyor Name(s)			
Licence Number(s) e.g. 12345:OTH:SA:2015			
Survey Start Time		Survey End Time	
Air Temperature (at start, in °C)			
Rain (tick)	None ☐	During Survey ☐	Immediately Prior ☐ Yesterday ☐
Torch Model (tick)	1 Million Candle Power ☐	2 Million Candle Power ☐	Other (Add details to Site Notes) ☐
Wind Speed (tick)	0 Calm ☐	1 Light Air ☐	2 Light Breeze ☐ 3 Gentle Breeze ☐
	4 Moderate Breeze ☐	5 Fresh Breeze ☐	6 Strong Breeze ☐
Site Notes			

Wales Great Crested Newt Monitoring Form V 1b

Step 2: Environmental & Survey Variables Please print as many copies of this table as you require depending on the number of ponds/other sub-sites within this site. Add the pond numbers/codes to the greyed out box at the top of the table. Fill in the table by ticking the relevant box for each pond, adding the relevant letter where there is a coded list of options provided, or adding the required numeric value .										
Pond (Sub-Site) Numbers/Codes Use additional copies of the table if more than 10 ponds										
Environmental/Survey Variable										
Air Temperature (°C) (if recorded at each Pond/sub-site)										
Water Temperature (°C) (if recorded at each Pond/sub-site)										
Wind disturbing water? Tick if yes										
Non-native aquatic plants present? (Tick if yes, and list species below within 'Additional Notes')										
Estimated Water Depth a. 0m (pond dry) b. <0.1m c. 0.1-0.5m d. 0.5-1m e. 1m or more f. Unknown										
Water Clarity a. Good (pond bottom visible) b. Intermediate (bottom visible in shallows) c. Turbid (bottom not visible) NA (pond dry/not measurable)										
Pond Edge Surveyed (%)										
What Survey Method(s) did you use Put more than one if appropriate a. Disturbance (e.g. torching) b. Taking (e.g. trapping, netting) c. Both d. NA (not surveyed)										
Number of traps used (only required if trapping used)										
Trap intervals (metres) (only required if trapping used)										
Additional Notes										

Wales Great Crested Newt Monitoring Form V 1b

Step 3: Species Records Please record up to 2 ponds/sub-sites per sheet and print as many sheets as required for the site. Print double sided to record 4 per sheet. Use each box to record/tally numbers of Males, Females or Unknown , indicating A=Adult or J=Juvenile where known. Use the Other box to record M=Metamorph (newly terrestrial animal), L=Larva/Tadpole , E=Egg/String of Eggs/Frogspawn , ASU= Age & Sex Unknown					
		1. Pond (sub-site) code/number:		2. Pond (sub-site) code/number:	
Great Crested Newt <i>(Triturus cristatus)</i>	Male				
	Female				
	Unknown				
	Other				
Palmarate Newt <i>(Lissotriton helveticus)</i>	Male				
	Female				
	Unknown				
	Other				
Smooth Newt <i>(Lissotriton vulgaris)</i>	Male				
	Female				
	Unknown				
	Other				
Smooth/Palmarate Newt <i>(Lissotriton)</i>	Male				
	Female				
	Unknown				
	Other				
Unidentified Newt (sex and stage if known)					
Alpine Newt <i>(Ichthyosaura alpestris)</i> (sex & stage if known)					
Common Frog <i>(Rana temporaria)</i>	Male				
	Female				
	Unknown				
	Other				
Common Toad <i>(Bufo bufo)</i>	Male				
	Female				
	Unknown				
	Other				
Floating Pennywort <i>(Hydrocotyle ranunculoides)</i>		Tick if found		Floating Pennywort	Tick if found
Parrot's-feather <i>(Myriophyllum aquaticum)</i>		Tick if found		Parrot's-feather	Tick if found
Canadian/Nuttall's Waterweed <i>(Elodea canadensis/nuttallii agg.)</i>		Tick if found		Canadian/Nuttall's Waterweed	Tick if found
Water Fern <i>(Azolla filiculoides)</i>		Tick if found		Water Fern	Tick if found
Notes: Used if survey method differs between ponds/sub-sites and to describe survey method e.g. <i>All ponds torched apart from the 2 female Common Toads which were netted or Pond 1 was trapped whilst Pond 2 was torched.</i> Also anything else about your survey, including additional species recorded.					

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		1. Pond (sub-site) code/number:		2. Pond (sub-site) code/number:			
Great Crested Newt <i>(Triturus cristatus)</i>	Male						
	Female						
	Unknown						
	Other						
Palmate Newt <i>(Lissotriton helveticus)</i>	Male						
	Female						
	Unknown						
	Other						
Smooth Newt <i>(Lissotriton vulgaris)</i>	Male						
	Female						
	Unknown						
	Other						
Smooth/Palmate Newt (<i>Lissotriton</i>)	Male						
	Female						
	Unknown						
	Other						
Unidentified Newt (sex and stage if known)							
Alpine Newt (<i>Ichthyosaura alpestris</i>) (sex & stage if known)							
Common Frog <i>(Rana temporaria)</i>	Male						
	Female						
	Unknown						
	Other						
Common Toad <i>(Bufo bufo)</i>	Male						
	Female						
	Unknown						
	Other						
Floating Pennywort (<i>Hydrocotyle ranunculoides</i>)		Tick if found		Floating Pennywort		Tick if found	
Parrot's-feather (<i>Myriophyllum aquaticum</i>)		Tick if found		Parrot's-feather		Tick if found	
Canadian/Nuttall's Waterweed (<i>Elodea canadensis/nuttallii</i> agg.)		Tick if found		Canadian/Nuttall's Waterweed		Tick if found	
Water Fern (<i>Azolla filiculoides</i>)		Tick if found		Water Fern		Tick if found	
Notes: Used if survey method differs between ponds/sub-sites and to describe survey method e.g. <i>All ponds torched apart from the 2 female Common Toads which were netted or Pond 1 was trapped whilst Pond 2 was torched.</i> Also anything else about your survey, including additional species recorded.							

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Step 4: HSI Scores table

Please use the table below to record the Habitat Suitability Index variables for each pond/other sub-site (the HSI Score itself will be calculated when you enter the data into the Cofnod Online Recording System). Please **print as many copies of this table as you require** depending on the number of ponds/other sub-sites within this site. Add the pond **numbers/codes** to the greyed out box at the top of the table. **NB: Please consult the document Great Crested Newt Habitat Suitability Index for detailed explanations of the following variables and how to record them.** Please also consider completing a **short description of each pond** (overleaf).

Pond (Sub-Site) Numbers/Codes										
Use additional copies of the table if more than 10 ponds										
Surveyor(s)										
Date of Assessment										
HSI 1: Geographic Location	<i>This does not need to be completed, as Cofnod hold the relevant details.</i>									
HSI 2: Pond Area (in m ²)										
HSI 3: Permanence a. Never Dries b. Rarely Dries c. Sometimes Dries d. Dries Annually										
HSI 4: Water Quality a. Good b. Moderate c. Poor d. Bad										
HSI 5: Shade a. 60% or less b. 61-65% c. 66-70% d. 71-75% e. 76-80% f. 81-85% g. 86-90% h. 91-95% i. 96-100%										
HSI 6: Waterfowl a. Absent b. Minor c. Major										
HSI 7: Fish a. Absent b. Possible c. Minor d. Major										
HSI 8: Pond Count										
HSI 9: Terrestrial Habitat 1. Good 2. Moderate 3. Poor 4. None										
HSI 10: Macrophyte Cover (%) See Figure in HSI Guidance document and choose appropriate % value (0/10/20/30 etc.)										
Notes										

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Step 4 continued: Pond Descriptions

Add pond numbers/codes and descriptions below, noting relevant codes to identify any photographs you have taken.
(You will be able to upload these onto the Cofnod Online Recording System.)

Pond (Sub-site) Number/Code	Pond Description

