

APPENDIX 15D Pond Surveys 2008

PROPOSED 132kV LINE BETWEEN LEGACY AND OSWESTRY

**POND SURVEYS 2008
(Report Ref: 700.192)**

for

**SP Manweb
3 Prenton Way
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August 2008

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CONTENTS	PAGE
1.0 INTRODUCTION	2
2.0 BACKGROUND	2
4.0 RESULTS	3
5.0 CONCLUSIONS.....	4
6.0 RECOMENDATIONS	4
7.0 REFERENCES AND FURTHER READING	5

APPENDICES

Appendix A:	Pond description
Appendix B:	Photographic record
Appendix C:	Habitat Suitability Index (HIS) assessment of ponds results
Appendix D:	Great crested newt habitat suitability index guidelines

DRAWINGS

D700.222	Proposed route in relation to Johnstown Newts Site SAC
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1.0 INTRODUCTION

- 1.1 TEP was commissioned by Scottish Power Manweb to undertake great crested newt (*Triturus cristatus*) pond surveys along the route of a proposed wood pole 132kV overhead line (OHL) between Legacy (Wrexham), and Oswestry. The purpose of the survey was to determine whether there are any breeding great crested newt populations present in ponds within 500m of the Johnstown Newts Site Special Area of Conservation (SAC), also known as Stryt Las A'r Hafod Site of Special Scientific Interest (SSSI), which are also adjacent to the proposed overhead line route.
- 1.2 This report has the following objectives:
- to assess the potential of ponds within 500m of the SAC to support great crested newts
 - to identify whether there are any breeding great crested newt populations present in these ponds
- 1.3 A description of the planning policies, planning guidelines and legislation relevant to great crested newts can be found on the TEP website (www.tep.uk.com).

2.0 BACKGROUND

- 2.1 SP Manweb has identified a need to reinforce the existing 132kV network which presently supplies electricity to 80,000 customers located in the area south of Wrexham. This could be achieved through the establishment of a new wood pole mounted overhead line connection between Legacy substation (near Wrexham) and Oswestry substation (on the northern outskirts of Oswestry).
- 2.2 Desk-based investigations regarding the environmental characteristics of the area, together with visual site appraisals, were undertaken over a wide study area in order to appraise the various route options and propose a route. This information is summarised in a Consultation Document (TEP ref 700.054rev F).
- 2.3 An application will be submitted to the Secretary of State, the Department for Business, Enterprise and Regulatory Reform (BERR) for consent under Section 37 of the Electricity Act 1989 to construct the new overhead line. This will be accompanied by an Environmental Statement. The Environmental Statement will be prepared in accordance with the Electricity Works (Environmental Impact Assessment)(England and Wales) (Amendment) Regulations 2007.
- 2.4 A desktop survey has been undertaken for the overhead line route and is present in full in TEP report ref. 700.142 Original route for the proposed 132kV line between Legacy and Oswestry. However, no great crested newt records were obtained for ponds SAC1-5 or pond 49.

3.0 METHODS

- 3.1 The 'Great crested newt mitigation guidelines' (English nature, 2001) recommend that all ponds within 500m of development are surveyed for great crested newt presence if it is thought likely that great crested newt populations centred on these ponds would be affected by changes to the development site. In this case however, the level of anticipated impact of a wooden pole mounted overhead line is relatively low, with the opportunity for installation works to avoid impacts in the first instance. This has enabled the scope of the newt survey to be reduced from 500m to 150m from the proposed route corridor (the proposed route corridor is 100m wide, as defined in TEP document ref 700.141 and ref 700.142). However, due to the nationally significant population of great crested newts present at the Johnstown Newt Sites SAC, all ponds lying within 500m of this site were also surveyed.
- 3.2 Five ponds lying within 500m of Johnstown Newts Site SAC, together with pond 49 which could not be accessed in 2006 or 2007, were surveyed in 2008.
- 3.3 The surveys were undertaken over two days, the 9th and 16th June 2008 by ecologist Christopher Barrett (Countryside Council for Wales licence no. OTH:SA:51:2008) aided by ecologist Jenny Littler.

4.0 RESULTS

- 4.1 Numbered pond locations can be found at drawings D700.222, descriptions of ponds are provided at Appendix A, a photographic record of the ponds is presented at Appendix B and a Habitat Suitability Index (HSI) assessment for each pond is presented at Appendix C.
- 4.2 Great crested newt eggs were recorded in one of the ponds (SAC1) within the survey area, which confirms this species as breeding in this pond.
- 4.3 No great crested newt eggs were identified at ponds SAC2, SAC3, SAC4, SAC5 or P49.
- 4.4 The HSI for great crested newts (Oldham *et al*, 2000) incorporates ten suitability indices, all of which are factors thought to affect great crested newts. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores. Lee Brady has developed a system for using HSI scores to define pond suitability for great crested newts on a categorical scale:

Table 1: Categorisation of HSI scores

HSI score	Pond suitability for great crested newts
<0.5	Poor
0.5 – 0.59	below average
0.6 – 0.69	average
0.7 – 0.79	Good
>0.8	excellent

- 4.5 The results of the habitat suitability index assessment are presented at Appendix C. In summary, one pond was 'Excellent', one pond was 'Average', one pond was 'Poor' and four ponds were dry at the time of survey.

- 4.6 Although this survey focused on the presence/absence of breeding great crested newts, the ponds throughout the survey area would also provide valuable habitat for other species of native amphibian, including the common toad (*Bufo bufo*), which was made a UKBAP priority species in September 2007.

5.0 CONCLUSIONS

- 5.1 Great crested newt eggs were recorded in one of the five ponds surveyed in 2008 (pond SAC 1). This confirms that there is a breeding great crested newt population within 500m of the Johnstown Newts Site SAC. Although pond SAC1 is separated from the SAC by a train line in a cutting, this does not represent a barrier to newt migration. Great crested newts may therefore be migrating across the proposed route of the overhead line, a Welsh Assembly Government great crested newt development licence will be required for construction of the overhead line.
- 5.2 The great crested newt and its aquatic and terrestrial habitats are statutorily protected under UK and European legislation.

6.0 RECOMENDATIONS

- 6.1 The following recommendations are made with reference to the proposed development activities:
- Where possible, development activity should aim to be at least 50m from any great crested newt pond
 - For works within 150m of a great crested newt pond, or within 500m of Johnstown Newt Sites SAC (where no barriers to newt migration such as major roads or canals are present), a licence from the Welsh Assembly Government should be obtained (the designing of detailed method statements for licence applications will require further site visits).
- 6.2 If the above precautions and procedures are followed there should be no adverse effect on great crested newts or other amphibian populations as a result of the development.

7.0 REFERENCES AND FURTHER READING

COUNTRYSIDE COUNCIL FOR WALES (2000) *Great Crested Newt Guidance Note Number 7*. CCW, Bangor

ENGLISH NATURE (2001) *Great crested newt mitigation guidelines*. English Nature, Peterborough.

FROGLIFE (2002) *Great Crested Newt Conservation Handbook*. Froglife, The Herpetological Conservation Trust and English Nature

GRIFFITHS, R.A. & RAPER, S.J. (1994) 'A review of the current techniques for sampling amphibian communities' JNCC Report No. 210

HAGSTRÖM, T (1980) Egg production of newts (*Triturus vulgaris* and *T.cristatus*) in southwestern Sweden. *ASRA Journal* **1(3)**: 516 - 522

Oldham *et al.* (2000). *Herpetological Journal* vol. 10, no. 4, pp143-156.

**APPENDIX A:
Pond Descriptions**

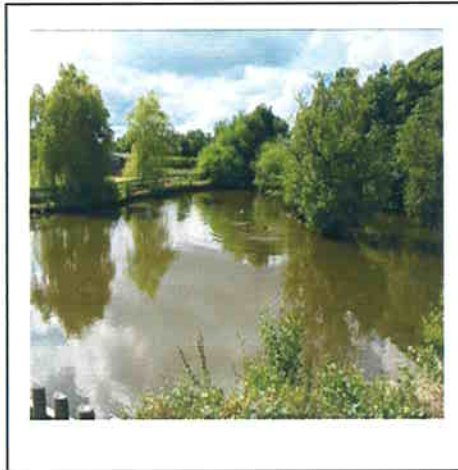
LEGACY TO OSWESTRY OVERHEAD LINE ROUTE

Pond ID	Perimeter (m)	Depth	GCN eggs	NOTES
SAC 1	60	>1m	Y	Murky water, pond was heavily vegetated with the majority of the pond covered by duckweed. There is a small island in the centre. Dense vegetation surrounding the pond.
SAC 2	150	>1m	N	Large pond with little vegetation surrounded by amenity grassland. Pond heavily stocked with fish.
SAC 3	DRY		N	The pond was dry at the time of survey.
SAC 4	40	<0.5m	N	A heavily shaded, shallow pond in woodland. Murky water with little vegetation.
SAC 5	DRY		N	The pond was dry at the time of survey.
Pond 49	DRY		N	The pond was dry at the time of survey.

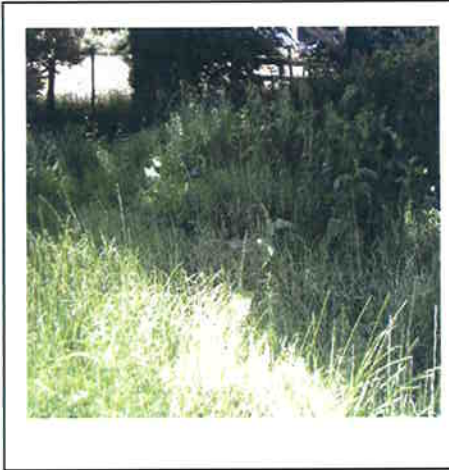
**APPENDIX B:
Photographic record**



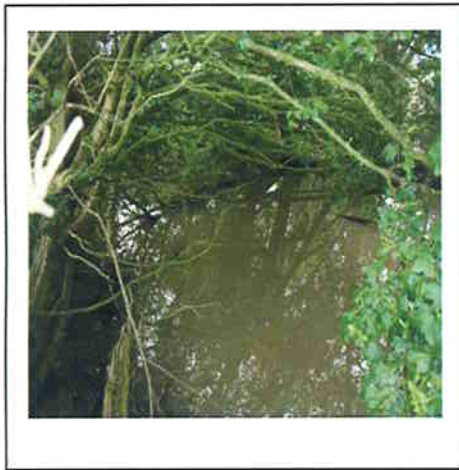
SAC 1



SAC 2



SAC 3



SAC 4



SAC 5



Pond 49

 Genesis Centre Birchwood Science Park Warrington WA3 7BH Tel 01925 844004 Fax 01925 844002 e-mail tep@tep.uk.com		
Project		
Legacy to Oswestry 2008 Pond survey		
Title		
Photographic record		
Drwg No	700.191	
Scale	Not to scale	
Drawn by	Checked by	Date
CHB	DCS	Aug 08

APPENDIX C:
Habitat Suitability Index (HSI) assessment of ponds results

LEGACY TO OSWESTRY OVERHEAD LINE ROUTE

SAC 1 NB: GCN eggs found

SI Ref	Description of Index	Measure / Comment	SI score
SI1	Geographic Location	A	1
SI2	Pond Area m2	200	0.4
SI3	Pond permanence/drying	Never	0.9
SI4	Water quality	Moderate	0.67
SI5	Shading %	50%	1
SI6	Presence of waterfowl	Minor	0.67
SI7	Presence of fish	Absent	1
SI8	Pond Density in area	10	1
SI9	Terrestrial Habitat Quality	Good	1
SI10	Macrophyte cover in pond	90%	0.9
HSI	Overall HSI for Pond:	Excelent	0.825

SAC 2 NB: No eggs found

SI Ref	Description of Index	Measure / Comment	SI score
SI1	Geographic Location	A	1
SI2	Pond Area m2	1500	0.9
SI3	Pond permanence/drying	Never	0.9
SI4	Water quality	Poor	0.33
SI5	Shading %	33%	1
SI6	Presence of waterfowl	major	0.01
SI7	Presence of fish	minor	0.33
SI8	Pond Density in area	10	1
SI9	Terrestrial Habitat Quality	moderate	1
SI10	Macrophyte cover in pond	5%	0.3
HSI	Overall HSI for Pond:	Poor	0.439

SAC 3 NB: No eggs found - POND DRY

SI Ref	Description of Index	Measure / Comment	SI score
SI1	Geographic Location		
SI2	Pond Area m2		
SI3	Pond permanence/drying		
SI4	Water quality		
SI5	Shading %		
SI6	Presence of waterfowl		
SI7	Presence of fish		
SI8	Pond Density in area		
SI9	Terrestrial Habitat Quality		
SI10	Macrophyte cover in pond		
HSI	Overall HSI for Pond:	Dry	0.000

SAC 4 NB: No eggs found

SI Ref	Description of Index	Measure / Comment	SI score
SI1	Geographic Location	A	1
SI2	Pond Area m2	150	0.4
SI3	Pond permanence/drying	never	0.9
SI4	Water quality	poor	0.33
SI5	Shading %	90%	0.3
SI6	Presence of waterfowl	minor	0.67
SI7	Presence of fish	possible	0.67
SI8	Pond Density in area	10	1
SI9	Terrestrial Habitat Quality	good	1
SI10	Macrophyte cover in pond	10%	0.4
HSI	Overall HSI for Pond:	Average	0.603

SAC 5 NB: No eggs found - POND DRY

SI Ref	Description of Index	Measure / Comment	SI score
SI1	Geographic Location		
SI2	Pond Area m2		
SI3	Pond permanence/drying		
SI4	Water quality		
SI5	Shading %		
SI6	Presence of waterfowl		
SI7	Presence of fish		
SI8	Pond Density in area		
SI9	Terrestrial Habitat Quality		
SI10	Macrophyte cover in pond		
HSI	Overall HSI for Pond:	Dry	0.000

POND 49 NB: No eggs found - POND DRY

SI Ref	Description of Index	Measure / Comment	SI score
SI1	Geographic Location		
SI2	Pond Area m2		
SI3	Pond permanence/drying		
SI4	Water quality		
SI5	Shading %		
SI6	Presence of waterfowl		
SI7	Presence of fish		
SI8	Pond Density in area		
SI9	Terrestrial Habitat Quality		
SI10	Macrophyte cover in pond		
HSI	Overall HSI for Pond:	Dry	0.000

APPENDIX D:
Great crested newt habitat suitability index guidelines

Great Crested Newt Habitat Suitability Index

Background

The Habitat Suitability Index (HSI) for the great crested newt was developed by Oldham *et al.* (2000). HSI scoring systems were originally developed by the US Fish and Wildlife Service as a means of evaluating habitat quality and quantity. An HSI is a numerical index, between 0 and 1. 0 indicates unsuitable habitat, 1 represents optimal habitat. The HSI for the great crested newt incorporates ten suitability indices, all of which are factors thought to affect great crested newts. These ten suitability indices are retained in this current Guidance Note.

The HSI system proposed by Oldham *et al.* (2000) is fairly easy to use. However, one suitability index (SI₉, terrestrial) involves a more lengthy measurement and calculation than the other factors. In using the HSI system with volunteer surveyors in Kent, Lee Brady substituted a simpler evaluation of terrestrial habitat quality, a four-point scale. Volunteers have found this modified HSI relatively easy to use.

Several other, local, surveys have utilised the HSI, but utilised their own variations on the original system. In 2007, a workshop was held at the Herpetofauna Workers' Meeting to evaluate the use of the HSI for the great crested newt, with the aims of:

- identifying components of the system that may need clarification or refinement
- agreeing on a standard that can be easily used by volunteers and professionals alike.

A conservative approach has been adopted in modifying the use of the original HSI suitability indices.

Use and limitations of HSI

The HSI for great crested newts is a measure of habitat suitability. It is not a substitute for newt surveys. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores. However, the system is not sufficiently precise to allow the conclusion that any particular pond with a high score will support newts, or that any pond with a low score will not do so.

There is also a positive correlation between HSI scores and the numbers of great crested newts observed in ponds. So, in general, high HSI scores are likely to be associated with greater numbers of great crested newts. However, the relationship is not sufficiently strong to allow predictions to be made about the numbers of newts in any particular pond.

HSI scoring can be useful in:

- Evaluating the general suitability of a sample of ponds for great crested newts
- Comparing general suitability of ponds across different areas
- Evaluating the suitability of receptor ponds in a proposed mitigation scheme.

How to collect data and calculate HSI

The HSI is a geometric mean of ten suitability indices:

$$\text{HSI} = (\text{SI}_1 \times \text{SI}_2 \times \text{SI}_3 \times \text{SI}_4 \times \text{SI}_5 \times \text{SI}_6 \times \text{SI}_7 \times \text{SI}_8 \times \text{SI}_9 \times \text{SI}_{10})^{1/10}$$

- The ten Suitability Indices are scored for a pond, in the field and from map work.
- The ten field scores are then converted to SI scores, on a scale from 0.01 to 1 (0.01 is used as the bottom end of the range in stead of 0, because multiplying by 0 reduces all other SI scores to 0).
- The ten SI scores are then multiplied together.
- The tenth root of this number is then calculated $(X)^{1/10}$

The calculated HSI for a pond should score between 0 and 1.

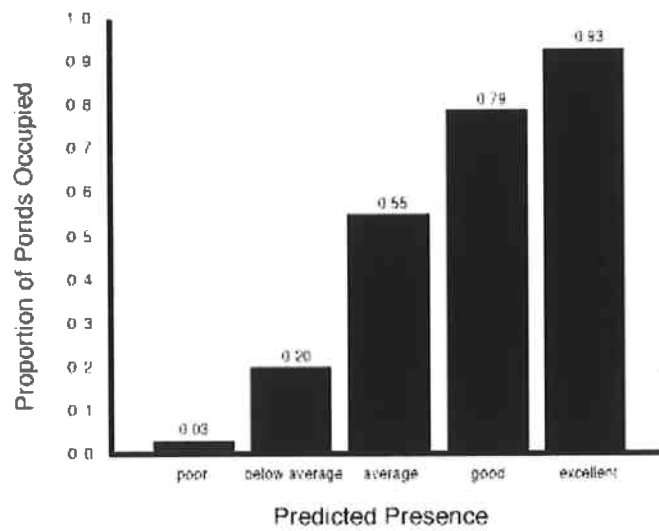
Some of the field scores are categorical, some are numerical. The numerical field scores are converted to SI scores by reading off the values from graphs produced by Oldham *et al.* (2000) reproduced in this Guidance Note.

The field scores are the data that should be collected by a surveyor. A summary of data to collect is given in *Summary of scoring system* below. More full details of the scoring system, including descriptions of the criteria used in the categorical scores are given in *Details of Suitability Indices and Definitions of Categories*. Two of the SI scores (SI₁ and SI₈) can be carried out as desktop/map exercises and so do not have to be completed in the field. The remaining SI scores should be recorded as field scores, and later converted to suitability indices, in some cases reading SI scores from the graphs provided in *Details of Suitability Indices and Definitions of Categories*.

Categorisation of HSI scores

Lee Brady has developed a system for using HSI scores to define pond suitability for great crested newts on a categorical scale:

HSI		Pond suitability
<0.5	=	poor
0.5 – 0.59	=	below average
0.6 – 0.69	=	average
0.7 – 0.79	=	good
> 0.8	=	excellent



Summary of scoring system

SI₁ Location

Field score	SI
A (optimal)	1
B (marginal)	0.5
C (unsuitable)	0.01

SI₂ Pond area

Field score	SI
Measure pond surface area (m ²) and round to nearest 50 m ²	Read off graph.

SI₃ Pond drying

Field score	SI	Criteria
Never	0.9	Never dries
Rarely	1.0	Dries no more than two years in ten or only in drought.
Sometimes	0.5	Dries between three years in ten to most years
Annually	0.1	Dries annually

SI₄ Water quality

Field score	SI	Criteria
Good	1.0	Abundant and diverse invertebrate community.
Moderate	0.67	Moderate invertebrate diversity
Poor	0.33	Low invertebrate diversity, few submerged plants
Bad	0.01	Clearly polluted, only pollution-tolerant invertebrates, no submerged plants.

SI₅ Shade

Field score	SI
Estimate percentage perimeter shaded to a least 1 m from shore.	Read off graph.

SI₆ Fowl

Field score	SI	Criteria
Absent	1	No evidence of water fowl (although moorhen may be present)
Minor	0.67	Waterfowl present, but little sign of impacts
Major	0.01	Severe impact of waterfowl

SI₇ Fish

Category	SI	Criteria
Absent	1	No records of fish stocking and no fish revealed during survey.
Possible	0.67	No evidence of fish, but local conditions suggest that they may be present.
Minor	0.33	Small numbers of crucian carp, goldfish or stickleback known to be present.
Major	0.01	Dense populations of fish known to be present.

SI₈ Ponds

Field score	SI
Count the number of ponds within 1 km of survey pond, not separated by major barriers, and divide by 3.14. This can be done from maps rather than in the field.	Read off graph.

SI₉ Terrestrial habitat

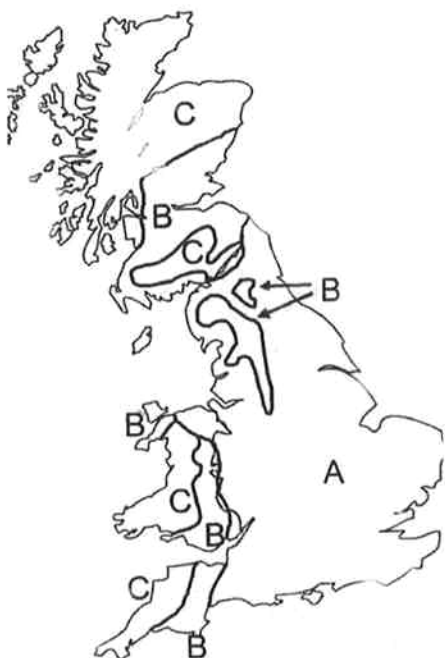
Field score	SI
Good	1
Moderate	0.67
Poor	0.33
None	0.01

SI₁₀ Macrophytes

Field score	SI
Estimate the percentage of the pond surface area occupied by macrophyte cover (between May and the end of September)	Read off graph.

Details of Suitability Indices and Definitions of Categories

Factor 1. Geographic location (SI₁)



Sites should be scored according to the zone in which they occur. This scoring can be carried out either in the field, or as part of a desktop exercise.

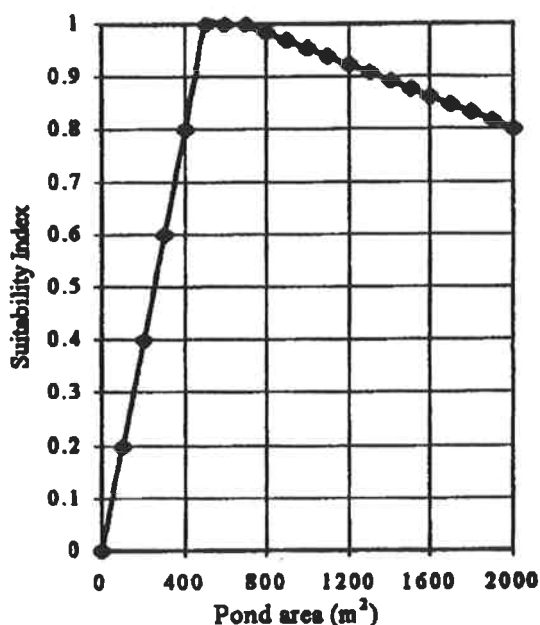
Zone A, location is optimal, SI = 1

Zone B, location is marginal, SI = 0.5

Zone C, location is unsuitable, SI = 0.01.

Some sites will fall on boundary lines between zones. In such cases, select medium-value scores i.e. Zone B.

Factor 2. Pond area



Pond area is the surface area of the pond when water is at its highest level (excluding flooding events). This is usually in the spring. If the pond is being measured at another time of year, the springtime area should still be evident from vegetation types and evidence of a draw down zone around the pond.

Pond area should be measured as accurately as possible. There are several ways of doing this, for example by measuring axes of regularly shaped ponds, either by pacing out in the field, or using a map. Irregularly shaped ponds may have to be treated as a series of geometrical shapes, calculating the area for each and adding together.

Since it can be difficult reading off SI scores from graph, pond area should be rounded to nearest 50 m.

It can be particularly difficult to read off SI scores for very small ponds. For ponds smaller than 50 m² a score of 0.05 should be used.

Factor 3. Permanence

Pond permanence should be deduced from local knowledge and on personal judgement. A landowner may know how often a pond dries. However, if not, the surveyor should make a judgement based on water level at the time of the survey, and taking seasonality into consideration. For example, a pond that is already dry by late spring is likely to dry out every year, etc.

Category	SI	Criteria
Never dries	0.9	Never dries.
Rarely dries	1.0	Dries no more than two years in ten or only in drought.
Sometimes dries	0.5	Dries between three years in ten to most years.
Dries annually	0.1	Dries annually.

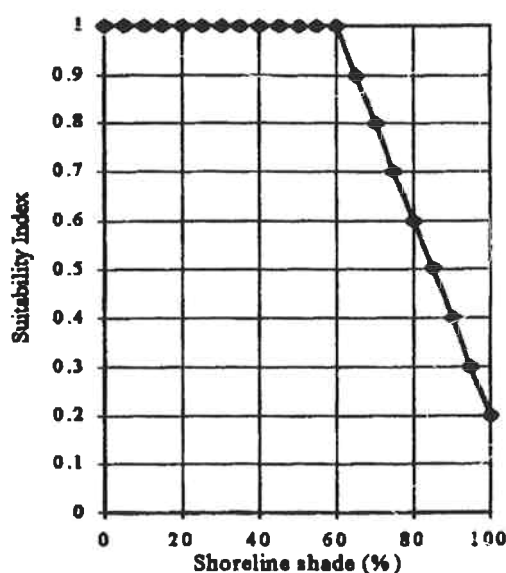
Factor 4. Water quality.

The assessment of water quality is subjective and should be based primarily on invertebrate diversity. Hence, water quality should not be confused with water clarity. Sometimes clear water can be devoid of invertebrates, and turbid ponds can support a wealth of invertebrates. There is no quick and simple invertebrate index of water quality. However, some species are indicators of water quality.

Category	SI	Criteria
Good	1.0	Water supports an abundant and diverse invertebrate community. Netting reveals handfuls of diverse invertebrates, including groups such as mayfly larvae and water shrimps.
Moderate	0.67	Moderate invertebrate diversity
Poor	0.33	Low invertebrate diversity (e.g. species such as midge and mosquito larvae. Few submerged plants.
Bad	0.01	Clearly polluted, only pollution-tolerant invertebrates (such as rat-tailed maggots), no submerged plants.

Other cues may also provide information about water quality. For example, ponds subject to agricultural inputs are likely to have poor water quality.

Factor 5. Shade



Estimate percentage pond perimeter shaded, to at least 1m from the shore. Shading is usually from trees, but can include buildings but should not include emergent pond vegetation. Estimate should be made during the period from May to the end of September.

Factor 6. Fowl

This factor is concerned with the impact of waterfowl upon a pond. At high densities, as created when waterfowl are encouraged to use a pond, by provision of food, the birds can remove all aquatic vegetation, pollute water and persistently stir sediments. Score as one of three categories.

Category	SI	Criteria
Absent	1	No evidence of waterfowl impact (moorhens may be present).
Minor	0.67	Waterfowl present, but little indication of impact on pond vegetation. Pond still supports submerged plants and banks are not denuded of vegetation.
Major	0.01	Severe impact of waterfowl. Little or no evidence of submerged plants, water turbid, pond banks showing patches where vegetation removed, evidence of provisioning waterfowl.

'Waterfowl' includes most water birds, such as ducks, geese and swans. Moorhens should be ignored because almost every pond has at least one or two.

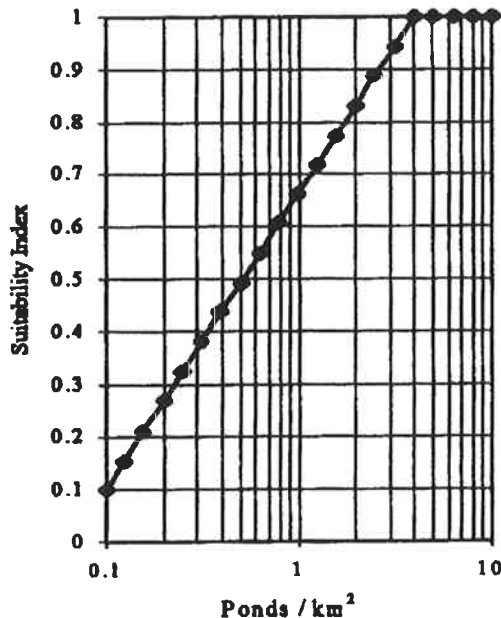
Factor 7. Fish

Information on fish should be gleaned from local knowledge and the surveyor's own observations. Pond owners will usually be aware of stocking with fish for commercial or aesthetic reasons. However, stickleback (which can be significant predators of great crested newt larvae, when present in large numbers) are unlikely to be

deliberately introduced to a pond, but may arrive through other means. Netting is useful in detecting smaller fish, such as sticklebacks, or the fry of larger species.

Category	SI	Criteria
Absent	1	No records of fish stocking and no fish revealed by netting or observed with torchlight.
Possible	0.67	No evidence of fish, but local conditions suggest that they may be present.
Minor	0.33	Small numbers of crucian carp, goldfish or stickleback known to be present.
Major	0.01	Dense populations of fish known to be present.

Factor 8. Pond count



This is the number of ponds occurring within 1 km of survey pond. Do not count the survey pond itself. Ponds on the far side of major barriers, such as main roads, should not be counted. Use 1:25,000 scale O.S. data, such as Explorer maps, GIS or web-based mapping sources. Pond counts can be carried out by a survey coordinator and so do not necessarily have to be performed by surveyors.

Getamap	www.ordnancesurvey.co.uk/oswebsite/getamap/
Magic	www.magic.gov.uk/site_map.html
Digimap	edina.ac.uk/digimap/

Divide the number of ponds by Pi (3.14) to calculate the density of ponds per km², and read off graph.

Factor 9. Terrestrial

Scoring terrestrial habitat depends on the surveyor's understanding of newt habitat quality. Good terrestrial habitat offers cover and foraging opportunities and includes meadow, rough grassland, hedges, scrub and woodland. Terrestrial habitat should be considered only on the near side of any major barriers to dispersal (e.g. main roads or large expanses of bare habitat).

Category	SI	Criteria
Good	1	Extensive area of habitat that offers good opportunities for foraging and shelter completely surrounds pond (e.g. rough grassland, scrub or woodland).
Moderate	0.67	Habitat that offers opportunities for foraging and shelter, but may not be extensive in area and does not completely surround pond.
Poor	0.33	Habitat with poor structure that offers limited opportunities for foraging and shelter (e.g. amenity grassland).
None	0.01	Clearly no suitable habitat around pond (e.g. centre of large expanse of bare habitat).

Great crested newts do not have specific habitat requirements. However, good quality terrestrial habitat has structure. The presence of rabbit borrows, small mammal holes, proximity to old farm buildings, stone walls, piles of loose stone/rock all contribute towards 'good' terrestrial habitat. Note that it is rare to encounter a pond with a terrestrial habitat category of 'none'.

Factor 10. Macrophytes

Estimate the percentage of the pond surface area occupied by macrophyte cover. This includes emergents, floating plants (excluding duckweed) and submerged plants reaching the surface. Make estimate during the newt breeding season (March to May). Read off SI value from graph.

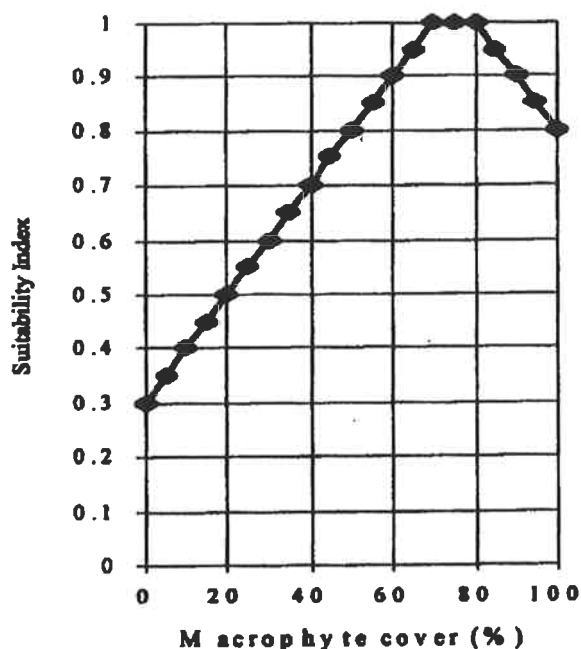
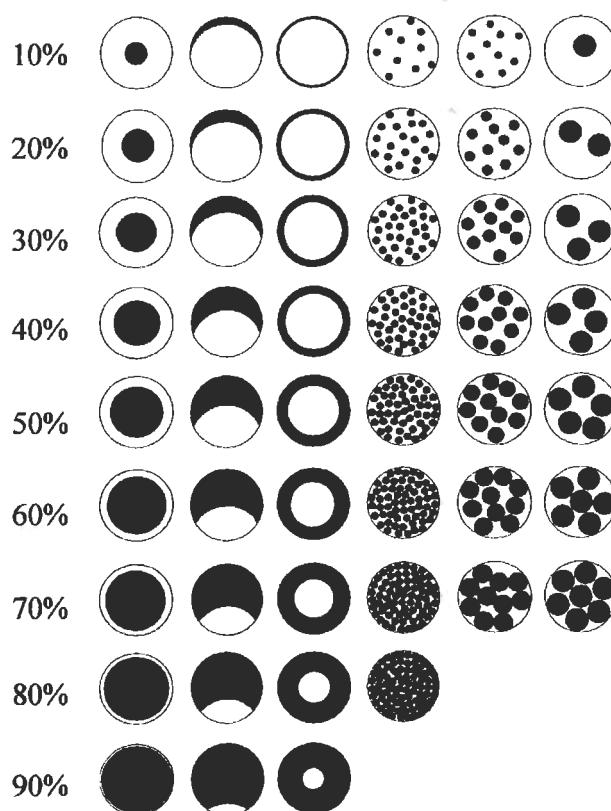


Fig. Guide for use in assessment of the proportions of vegetation cover in a pond. The areas of dark shading simulate a variety of vegetation dispersion patterns.



Reference

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

DRAWINGS



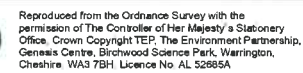
 80m Corridor for siting supports

 SAC - Special Areas of Conservation

500m buffer around Johnstown newt sites SAC

 Pond surveyed for GC Newts as part of route corridor survey (within 200m of notional centreline)

 Pond within 500m of SAC boundary, but outside original route GCN survey corridor



Rev	Description	Drawn	Approved	Date
	 Genesis Centre Birchwood Science Park Warrington WA3 7BH Tel: 01925 844004 Fax: 01925 844032 email: tep@tep uk.com			

Project:	Proposed 132kV Overhead Line Reinforcement between Legacy and Oswestry
Title:	Proposed Route in Relation to Johnston Newt Sites SAC
Drawing No: Scale:	D700.222 1:10,000 @A2
Date: 	April 08
Drawn: LC	Checked: PJR
Approved: PJ.R	TEP Ref No: D700.222

