

*Great Crested Newt (*Triturus cristatus*) eDNA Survey Report 2022*

The land at

Tuckwells, Worlingworth, Suffolk

Carried out for:

Paul Tuckwell

1st

Prepared by:

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CONTENTS

1	EXECUTIVE SUMMARY.....	1
2	INTRODUCTION	2
	BACKGROUND	2
	LEGISLATIVE CONTEXT	2
	SURVEY OBJECTIVES	3
	SITE DESCRIPTION.....	3
	GREAT CRESTED NEWT ECOLOGY.....	5
3	METHODS.....	6
	DESK STUDY.....	ERROR! BOOKMARK NOT DEFINED.
	GREAT CRESTED NEWT SURVEY	6
4	RESULTS	7
	EDNA SURVEY	7
	SURVEY LIMITATIONS	7
5	CONCLUSIONS AND RECOMMENDATIONS	8
6	REFERENCES	9
	APPENDIX I – SITE MAP.....	10
	APPENDIX II – EDNA RESULTS FROM SURESCREEN	11

1 Executive Summary

- 1.1 Abrehart Ecology Ltd was commissioned by Paul Tuckwell to conduct a great crested newt (GCN) (*Triturus cristatus*) environmental DNA (eDNA) survey as part of a Protected Species assessment that is required as part of a planning application at Tuckwells, Worlingworth, Suffolk (hereafter referred to as the Site).
- 1.2 The Site is approximately 1.1 ha in extent, is comprised of several buildings and hardstanding with a large pond and is surrounded by predominantly agricultural land.
- 1.3 A GCN eDNA survey was undertaken by an ecologist from Abrehart Ecology Ltd on the 12th of May 2022.
- 1.4 A desk study indicated that there were eight potential breeding ponds within 250m of the Site, however many of these were ecologically separated from the Site (Appendix I). For this study, one pond within the Site boundary was assessed.
- 1.5 Laboratory testing detected no GCN eDNA in the pond surveyed.
- 1.6 **Therefore, this report concludes that full GCN surveys are not required.** It is recommended that works proceed under a non-licensed method statement, in order to minimise the risk of harm to any animals that may be using the habitats within and/or adjacent to the Site.

2 Introduction

Background

- 2.1 A great crested newt (GCN) (*Triturus cristatus*) environmental DNA (eDNA) survey of the ponds at Tuckwells, Worlingworth, Suffolk was undertaken on behalf of Paul Tuckwell on the 12th of May 2022.
- 2.2 The survey was carried out in order to form an assessment of the ecological impacts that the proposed development may have on great crested newt populations in the area.
- 2.3 The survey aimed to ascertain the presence or likely absence of great crested newts using the Site, or within 250m, so that appropriate mitigation could be carried out if necessary (such as the application for a Natural England (NE) European Protected Species (EPS) Mitigation License – informed by population surveys).

Legislative Context

- 2.4 Great crested newts are a European Protected Species and a Species of Principle Importance in England under Section 41 of the NERC Act (2006). They are fully protected under UK and European legislation, making it is an offence to intentionally or recklessly:
 - Kill, injure or take great crested newts (or their eggs);
 - Possess, sell, transport or control live or dead great crested newt or any part of them;
 - Damage or destroy any breeding or resting place;
 - Obstruct access to any resting or shelter place.
- 2.5 Great crested newts are also listed on the Local Biodiversity Action Plan, as Suffolk is believed to be a stronghold for this species.
- 2.6 If great crested newts are recorded within 500m of the Site, a license must be obtained from Natural England prior to undertaking any work which may affect them.

Survey Objectives

2.7 The objectives of this survey were:

- To determine the presence or likely absence of great crested newts within ponds up to 500m from the Site boundary;
- To make recommendations for further survey effort, where necessary.

Site description

2.8 The Site is located off Shop Street, on the west of the village of Worlingworth, Suffolk.

2.9 The Site consists of several buildings making up Tuckwells agricultural suppliers, with associated hardstanding access roads and vehicle parking areas. On the south of the Site there is a large pond, approximately 850m² in extent.

2.10 Surrounding the Site is predominantly arable agricultural land, as well as hedgerows, trees and residential properties and gardens (see Figure 1).

2.11 A map showing pond locations can be found in Appendix I.

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Site Location

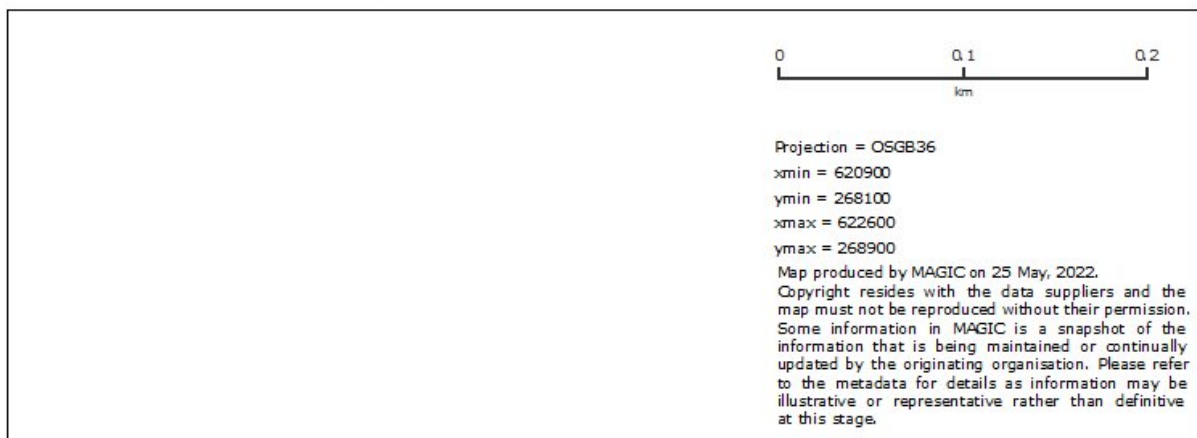
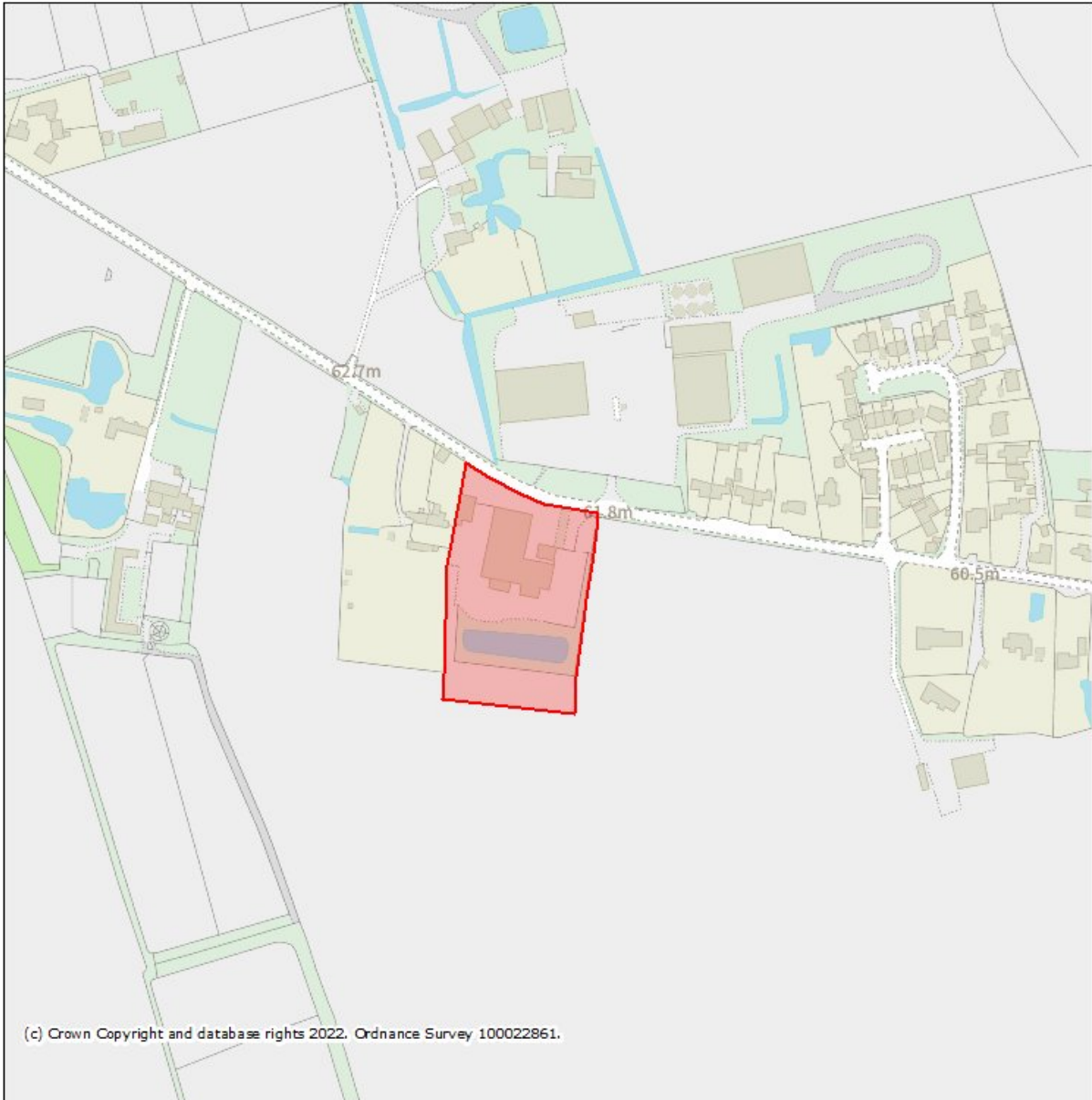


Figure 1. Site location

Great Crested Newt Ecology

- 2.12 Great crested newts (GCN) are distributed throughout the UK but are absent from Ireland. Despite a wide distribution, populations have reduced or disappeared from sites across Europe as a result of habitat loss and changes in farming practices (Froglife, 2017).
- 2.13 The great crested newt is the largest newt species in the UK, reaching a length of up to 17cm. Male great crested newts develop a jagged crest along their backs during breeding season with a break at the base of the abdomen and a silvery flash along the centre of the tail. Both males and females have dark skin, with a 'warty' appearance, and orange underside with irregular black markings and white speckling. During their terrestrial phase the male loses his crest, however the female retains her orange tail stripe (Froglife, 2017; Inns, 2009).
- 2.14 Like other UK amphibian species, great crested newts use suitable waterbodies for breeding (often between March and June). Large ponds, with egg laying substrate (weeds, aquatic plants, grasses etc.) and no fish are favoured sites (Froglife, 2017). Whilst in their aquatic phase, great crested newts feed on invertebrates and tadpoles, relying on smell and vision to find their prey (Beebee, 2013).
- 2.15 Courtship and mating take place at night and female newts lay eggs individually on plant leaves, which are folded to protect the egg. Adults leave breeding ponds in July, with young newts remaining within ponds until August (Inns, 2009).
- 2.16 During their terrestrial phase (late summer, autumn and winter) great crested newts feed on invertebrates and spend the majority of winter months sheltering beneath rocks, buried in mud or within compost heaps (Froglife, 2017). Favoured terrestrial habitats include deciduous woodland, mature hedgerows and undisturbed grassland (Inns, 2009).

3 Methods

Great Crested Newt Survey

Habitat Assessment

- 3.1 Habitats recorded within the Site, such as the pond, were considered suitable to support amphibians including great crested newts.
- 3.2 There were approximately eight potential breeding ponds within 250m of the Site, including the one within the Site boundary (see Appendix I). However, some of these were ecologically separated from the Site, such as by a road, so were not assessed for their potential to support breeding great crested newts.
- 3.3 The single pond within the Site boundary was assessed as part of this report. A brief description of the pond can be seen below.
- 3.4 **Pond 1:** A long rectangular shaped pond, approximately 850m² in extent, located on the south of the Site.

Field Sampling

- 3.5 The sampling visit was undertaken by an ecologist from Abrehart Ecology Ltd on the 12th of May 2022. The ecologist is certified as a surveyor and trained in the methodology necessary to reliably undertake this sampling. The survey was conducted following methods described by Biggs *et al* (2014), as approved by Natural England. Samples were refrigerated immediately after collection and returned to the laboratory for processing within four days – samples can be stored in a refrigerator for four weeks.

Laboratory Testing

- 3.6 Laboratory testing was undertaken by Surescreen Scientifics Ltd. Surescreen are listed as a quality provider of this service and strictly adhere to methods described by Biggs *et al* (2014).

4 Results

eDNA Survey

- 4.1 A single pond within the Site boundary was targeted during the survey. This was not dry at the time of the survey, and therefore was sampled and tested for the presence of great crested newts.
- 4.2 Laboratory testing detected no evidence of GCN eDNA from Pond 1. Sample integrity, degradation and inhibition checks all passed (see Appendix II).
- 4.3 Results indicate that GCN are likely not present in ponds within 250m of the Site boundary.

Survey Limitations

- 4.4 There were no significant limitations to the survey. The pond targeted was not dry at the time of the survey.

5 Conclusions and Recommendations

- 5.1 To determine the presence or likely absence of great crested newts in and around the Site, an eDNA survey was undertaken on the 12th of May 2022 by an experienced, licensed surveyor of ponds within 250m of the Site.
- 5.2 The pond targeted was not found to be dry, therefore, a single pond was surveyed for the presence of GCN according to methods described by Biggs *et al* (2014).
- 5.3 No GCN eDNA was detected within the pond surveyed. Therefore, **full great crested newt surveys are not required** prior to the start of construction works; although it is recommended that the works should be carried out under a non-licensed method statement as a precautionary measure.
- 5.4 It should be noted that the eDNA results may show a positive or negative result for GCN eDNA in the waterbody; however, this is an indicator only and not 100% positive or negative to the animals' use of the water body.

6 References

Literature

Beebee, T. (2013) Amphibians and reptiles. Pelagic Publishing, PO Box 725, Exeter, EX1 9QU.

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

HSI Calculator ©Owen Crawshaw, 2015.

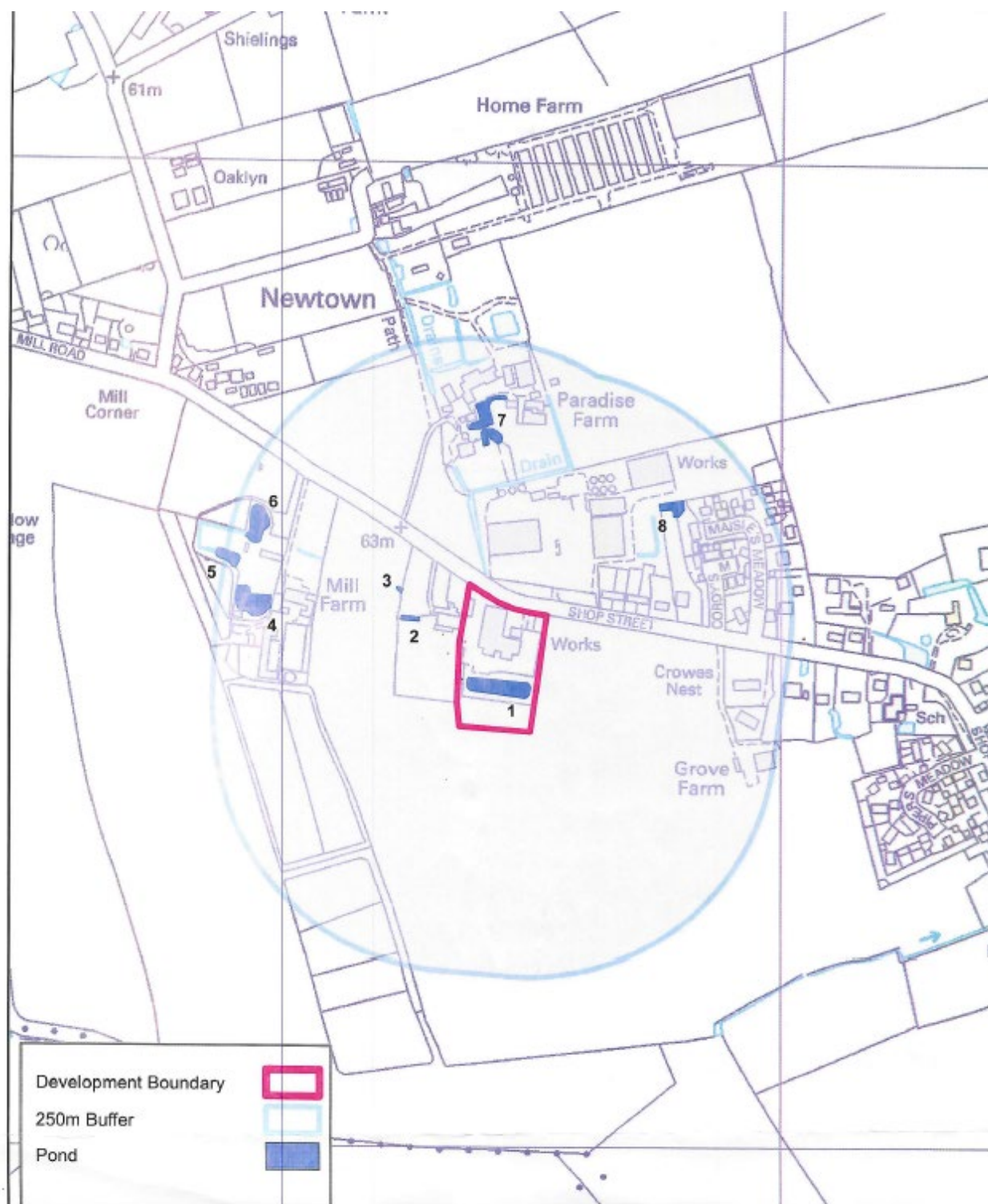
Inns, H. (2009) Britain's Reptiles and Amphibians. Wild Guides Ltd, Parr House, 63 Hatch Lane, Old basing, Hampshire, RG24 7EB, UK.

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.

Websites

<http://natureonthemap.naturalengland.org.uk/MagicMap.aspx>

Appendix I – Site Map



Appendix II – eDNA Results from SureScreen



Folio No: E13627
Report No: 1
Purchase Order: Worlingworth
Client: ABREHART ECOLOGY LTD
Contact: Lindsey

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 17/05/2022
Date Reported: 25/05/2022
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
1531	Worlingworth		Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

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Page 1 of 2