



Tadmarton Road
Bloxham, Banbury

Protected Species Report: White-clawed Crayfish

Prepared For: Gladman Developments

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G9731.02.020 White Clawed Crayfish Survey Results

Executive Summary

Introduction	<p>The site is located to the south-west of Tadmarton Road, Bloxham, Banbury.</p> <p>The site application boundary measures approximately 4.4ha and is centred on national grid reference SP 42049 35945.</p>
Proposals	<p>Proposals include the construction of 60 residential dwellings with associated hard and soft landscaping.</p>
Survey Details	<p>Two survey visits were undertaken on 10th July and 8th September 2023 to confirm the likely presence or absence of white-clawed crayfish. The stream to the south of the site was subject to survey.</p>
Summary	<p>The stream was assessed as providing suitable habitat for white-clawed crayfish. No evidence of white-clawed crayfish was recorded during the survey. Environmental DNA (eDNA) sampling confirmed white-clawed crayfish to be absent from the stream. Signal crayfish were recorded during the survey.</p>
Conclusions	<p>No evidence of white-clawed crayfish was recorded within the stream; therefore, no further action is required in relation to this species.</p> <p>Signal crayfish are listed under Schedule 9 of the Wildlife and Countryside Act 1981. An Invasive Species Method Statement will be required to ensure legislation compliance.</p>

This Executive Summary is not a substitute for the full report. Refer to the full text of this report for further detail.

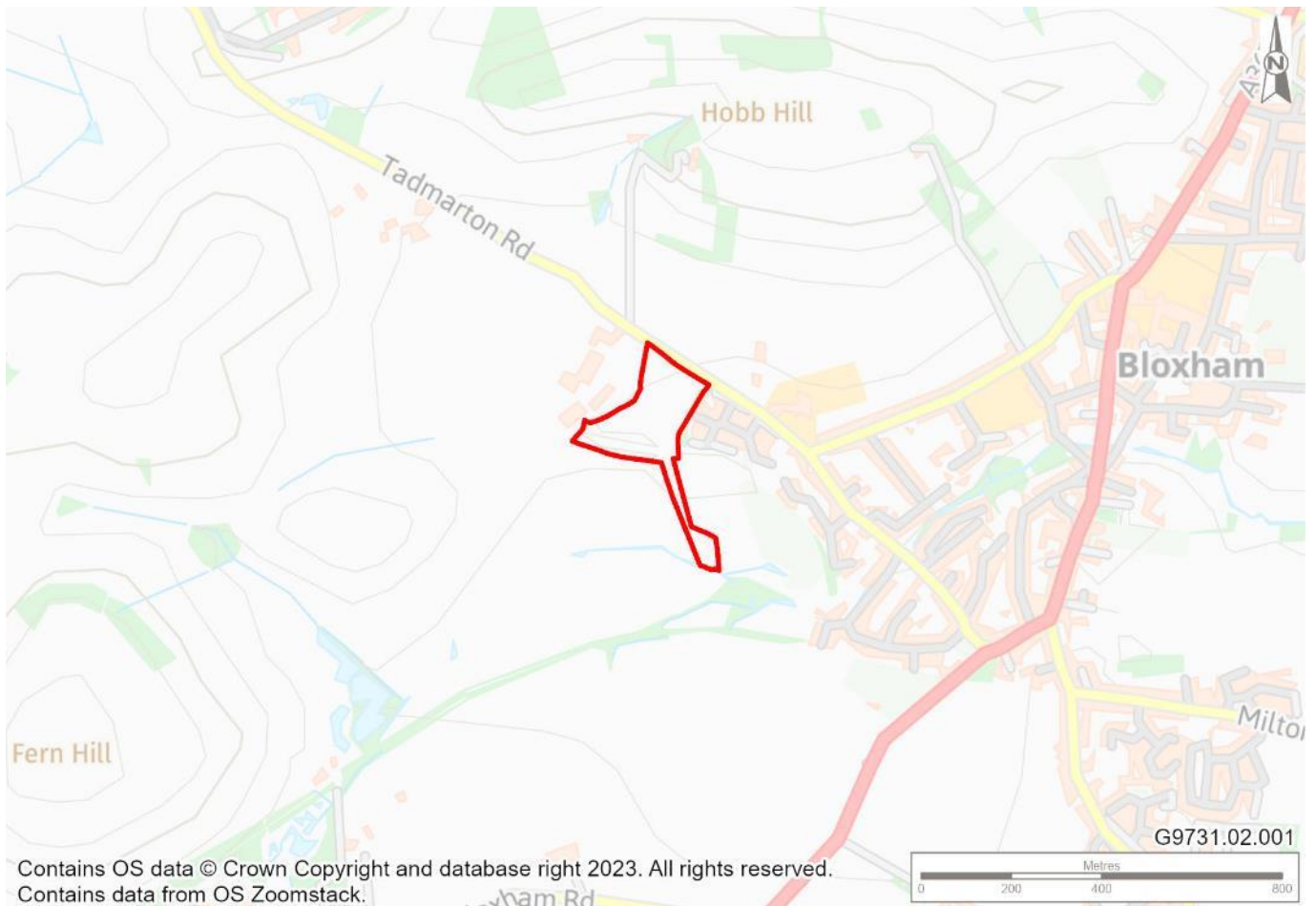
1.0 Introduction

- 1.1 TEP were commissioned by Gladman Developments to undertake a white-clawed crayfish *Austropotamobius pallipes* survey within watercourses on and adjacent to land south-west of Tadmarton Road, Bloxham, Banbury (hereafter referred to as ‘the site’). The survey forms part of the ecology evaluation to support an outline planning application for residential development.
- 1.2 White-clawed crayfish surveys were completed as part of a suite of ecology services to inform the Ecological Impact Assessment (EclA) (TEP Ref: 9731.02.010). Watercourses included for survey were identified as potentially suitable for white-clawed crayfish during the Phase 1 habitat survey conducted in January 2023.

Site Location

- 1.3 The site is located at Tadmarton Road, Bloxham, Banbury. The location of the site is depicted by the red line shown in Figure 1. The site boundary measures approximately 4.4ha and its central grid reference is SP 42049 35945.
- 1.4 The site is dominated by two arable fields comprising temporary grassland ley. Hedgerows are present along Tadmarton Road on the northern boundary and along a field boundary, and a short section of stream within semi-natural broadleaved woodland grazes the southern site boundary. Former quarry workings bisect the site encompassing a small section of running water, a large pond, dense scrub, and scattered trees. Wet ditches, tall ruderal vegetation, and scattered scrub habitats were also found within the site.
- 1.5 Tadmarton Road forms the north-eastern site boundary, a working farm is located directly to the north-west of the site, and the eastern boundary abuts a new housing development and associated public open space beyond which lies the village of Bloxham. Rural land under agricultural use extends in all other directions.

Figure 1: Site Location



Proposals

- 1.6 It is understood an outline planning application will be submitted for the erection of up to 60 residential dwellings, with public open space, landscaping, a sustainable drainage system (SuDS) and a vehicular access point. All matters are reserved except means for access.

Legislation

- 1.7 White-clawed crayfish is the only native UK freshwater crayfish species. It is fully protected as a European protected species (EPS) listed under Annex II and V of the EU Habitats Directive and Appendix II of the Bern Convention. It is also protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

Survey Design and Scope

- 1.8 The white-clawed crayfish survey is designed to establish the current status of white-clawed crayfish in the survey area and to evaluate the importance of the survey area for the species.
- 1.9 The stream running along the southern site boundary was assessed as providing suitable habitat for white-clawed crayfish and was therefore subject to survey. The survey area extended approximately 200m in length.
- 1.10 The wet ditches within the site were assessed as being unsuitable for white-clawed crayfish due to the organic matter content and pollution via run-off from the pheasant compounds, and were therefore scoped out of the survey.

2.0 Methods

Desk Study

- 2.1 In line with current best practice (CIEEM, 2016¹, 2017b²), information regarding designated sites, notable habitats and existing protected and notable species records of the past decade, within a 2km minimum radius of the site was collated and reviewed to inform this ecological assessment. Further details are presented in the Ecological Desk Study (TEP Ref 9731.02.001).

Field Survey

- 2.2 The white-clawed crayfish survey was undertaken by a suitably qualified Ecologist, who holds a white-clawed crayfish licence, accompanied by a health and safety assistant on 10th July 2023. A 200m stretch of the stream was surveyed, starting downstream to the east of the site. Further confirmation of survey competency can be provided upon request.
- 2.3 Walking upstream, ecologists assessed the suitability of the stream to support white-clawed crayfish. This involved recording physical characteristics of the watercourse (such as channel width and depth, substrate, bank profile and flow types) and the vegetation structure within the channel and along the banks. Features offering suitable refuge habitat such as undercut banks, submerged tree roots, cobbles and dams were recorded and inspected for white-clawed crayfish.
- 2.4 Invertebrate species were also recorded in order to further ascertain the suitability of the stream for white-clawed crayfish and to provide an indication of water quality levels.
- 2.5 Manual search surveys, including stone turning, and netting were undertaken in line with current best practice guidance (Peay, 2003)³. Stones were systematically turned with a net held in the water column, downstream, to trap any white-clawed crayfish that may be using the feature.

Environmental DNA (eDNA)

- 2.6 Environmental DNA (eDNA) sampling was undertaken of the stream at the southern end of the site on 8th September 2023.

¹ CIEEM (2016) Guidelines for Accessing and Using Biodiversity Data. Chartered Institute of Ecology & Environmental Management

² CIEEM (2017b) Guidelines for Preliminary Ecological Appraisal, 2nd Edition. Chartered Institute of Ecology & Environmental Management

³ Peay, S. (2003). Monitoring the White-clawed Crayfish: Conserving Natura 2000 Rivers, Ecology Series No. 1

2.7 Sample collection was undertaken by a suitably qualified Ecologist, accompanied by a health and safety assistant. Sample kits and analysis were provided by SureScreen Scientifics. In summary the sampling protocol is as follows:

- 20 samples were taken from the river perimeter. The location of the samples were spaced as evenly as possible. In rivers, samples were taken against the flow of the stream, working upstream in a diagonal pattern where possible.
- The surveyor stayed out of the water while taking the samples (extension poles were used in situations where open/sufficiently deep water was at a distance from the dry banks) to avoid any disruption of sediment.
- The water sample was taken from the middle of the water column (at least 10cm from the bottom where possible).
- Once 20 samples were collected, the bag was closed securely and shaken to mix the water sample. 50ml water samples were passed into and through the filter until a minimum of 250ml of water had passed through the filter. Preservative solution was added into the filter unit to prevent sample degradation during transport and caps were fitted to both ends of the filter unit.
- At all times the surveyor ensured that the risk of contaminating the sampling equipment was minimised by avoiding the placement of the syringe or filter unit on the ground or on any otherwise potentially contaminated surfaces and by changing gloves between the initial sampling stage and the syringing stages of the method.

Chain of Custody

2.8 On receipt from SureScreen Scientifics, the sampling kit was registered on a central database using the unique bar code. Immediately prior to survey, sampling kit was issued to the surveyor with an individual Sample Form using the unique bar code as identification. The Site name and date of issue was also recorded on this form (and on the central database). Once in the field and at the watercourse, the surveyor confirmed that the appropriate field survey sheet was being completed by checking the bar code on the box and double checking the corresponding bar code on the sample tube. The surveyor then filled in the date of survey and the watercourse ID number (as well as other information relating to survey conditions) on the Sample Form.

2.9 On returning to the office the Sample Form was signed to confirm who received the sample and checked them into the fridge, and the temperature of the fridge. The watercourse ID on the form was checked against a Site map to confirm which watercourse had been sampled and this map was stored with the Sample Form. All this information was also recorded on the central database. The sample preserving tube was stored in a fridge until the morning of collection by the courier. The Sample Form and the central database were updated to confirm the date of collection by the courier.

- 2.10 A unique bar code was used by SureScreen Scientifics to report results. All results were recorded in the central database by one member of staff and cross checked by a second member of staff before issuing to the project leader for review.
- 2.11 The recommended period for carrying out white-clawed crayfish surveys is May to October (inclusive). The optimum time is from July to September, once the crayfish have released their young. Both surveys were carried out during the optimum survey period.

Assumptions

- 2.12 Information provided by third parties, including publicly available information, is assumed to be correct at the time of publication.

3.0 Results

Desk Study

- 3.1 The desk study (TEP Ref: 9731.02.001) did not return any records of white-clawed crayfish within 2km of the site.

Field Survey

- 3.2 The stream flows along the southern site boundary, flowing west to east. The stream is lined with semi-mature to mature trees and woodland. The channel is approximately 2-3m wide and support steep, earth banks up to 1m in height (Figure 2). The stream does not support any in-channel vegetation. Bankside vegetation includes ground-ivy *Glechoma hederacea*, meadow sweet *Filipendula ulmaria*, cleavers, nettles, grasses, lesser celandine *Ficaria verna* and cow parsley *Anthriscus sylvestris*. The stream is heavily shaded by common hawthorn *Crataegus monogyna*. The water was typically deeper than 50 cm, reaching up to 1m in places.

Figure 2: Stream



- 3.3 Moderate invertebrate numbers and diversity were noted. The following species were recorded during the survey:

- *Baetidae* mayfly
- Blackfly *Simuliidae* sp.
- Bloodworm *Glycera* sp.
- *Ephemera* mayfly
- Freshwater shrimp *Gammarus* sp
- Leech *Glossiphonia* sp.

- Lesser water boatman *Corixa punctata*
- Common water boatman *Notonecta sp.*
- Water slater *Asellus aquaticus*

3.4 The stream supported suitable refugia for white-clawed crayfish including tree root systems, boulders, undercut banks, stone walls (Figure 3) and natural dams made from accumulated debris (Figure 4).

Figure 3: Suitable white-clawed crayfish habitat - Stone wall



Figure 4: Suitable white-clawed crayfish habitat - Natural dam



3.5 No evidence of white-clawed crayfish was identified during the manual search survey, including during the stone turning and netting.

3.6 A signal crayfish *Pacifastacus leniusculus* was recorded during the surveys. Signal crayfish are an invasive non-native species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Environmental DNA (eDNA) Survey

- 3.7 The eDNA results for the stream confirmed white-clawed crayfish to be absent from the stream. Detailed results are provided at Appendix A.

4.0 Conclusions

- 4.1 A habitat assessment, manual search survey, including stone turning and netting, and eDNA sampling have been undertaken on the stream within the site, which was highlighted within the Phase 1 habitat survey as having potential for white-clawed crayfish.
- 4.2 No evidence of the species was recorded during the manual search survey.
- 4.3 The eDNA analysis also confirmed white-clawed crayfish to be absent from the stream.
- 4.4 Signal crayfish *Pacifastacus leniusculus* were recorded in the stream during the survey. There is potential for signal crayfish to also be present within the ditches on site, which also provide suitable habitat for this species. Signal crayfish are listed under Schedule 9 of the Wildlife and Countryside Act 1981 and it is an offence to facilitate the spread of them into the wild. An Invasive Species Method Statement will be required to ensure legislation compliance. The method statement will include the following:
- A buffer zone should be applied of at least 7m from the edge of all streams and ditches. Fencing should be used to mark out the buffer zone.
 - A toolbox talk should be delivered to all contractors.
 - Anything going within the 7m buffer, including machinery and footwear, should be thoroughly decontaminated before and after, following strict biosecurity protocols to minimise the risk of the spread of crayfish plague.
 - Any drainage works within a watercourse or 7m buffer should be supervised by an Ecological Clerk of Works (ECoW) to dispatch any signal crayfish encountered.
- 4.5 The results of the survey concluded that white-clawed crayfish are absent from site and are therefore not a constraint in respect to the development. No further action is required in respect to white-clawed crayfish.

Appendix A: SureScreen Scientifics eDNA Results

Drawings

G9731.02.020 White Clawed Crayfish Survey Results



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