Improvement Programme for England's Natura 2000 Sites (IPENS) – Planning for the Future IPENS065

White-clawed crayfish survey for Ensor's Pool SSSI/SAC (Warwickshire)

Ensor's Pool Special Area of Conservation (SAC)

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Foreword

The **Improvement Programme for England's Natura 2000 sites (IPENS)**, supported by European Union LIFE+ funding, is a new strategic approach to managing England's Natura 2000 sites. It is enabling Natural England, the Environment Agency, and other key partners to plan what, how, where and when they will target their efforts on Natura 2000 sites and areas surrounding them.

As part of the IPENS programme, we are identifying gaps in our knowledge and, where possible, addressing these through a range of evidence projects. The project findings are being used to help develop our Theme Plans and Site Improvement Plans. This report is one of the evidence project studies we commissioned.

This study was commissioned to determine presence and provide an indication of the size and health status of the white-clawed crayfish *Austropotamobius pallipes* population in Ensor's Pool Special Area of Conservation (SAC).

A survey was carried out during September 2014 with 80 traps set in areas containing habitat suitable for crayfish in margins and deep water within the site. Manual search of suitable refuges in the accessible water margins and sweep net search for juveniles within submerged aquatic vegetation was also undertaken.

The report confirms that no crayfish of any species were caught or seen during the survey. Additionally no crayfish carcasses or remnants were found. These results indicate that the once abundant population of white-clawed crayfish appears to have disappeared. The pool still appears to provide suitable habitat for crayfish and there is no indication that any other animal or plant species has been affected.

Crayfish plague has been an on-going threat to white-clawed crayfish at Ensor's Pool and the report indicates that this seems likely to be the cause of mortality. The report makes recommendations for a further survey to verify the absence of white-clawed crayfish and determine whether signal crayfish are present.

Issues discussed within the report have been incorporated into the Ensor's Pool Site Improvement Plan.

The key audience for this work is the staff within Natural England and land managers and it will be used to inform management requirements within the site.

Natural England Project officer: Helen Trapp, **helen.trapp@naturalengland.org.uk**

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WHITE-CLAWED CRAYFISH SURVEY FOR ENSOR'S POOL SSSI/SAC (WARWICKSHIRE)

Prepared by: David Rogers Associates
9 The Moat, Castle Donington, Derby, DE74 2PD
Tel: 0794 1251313
http://website.lineone.net/~d-rogers/

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1.0 Introduction

Ensor's Pool was notified as a SSSI in 1995 when it supported a large and healthy population of white-clawed crayfish, *Austropotamobius pallipes*, and it is the population of this species that is the interest feature of the site. In 2001 Ensor's Pool was designated a Special Area of Conservation (SAC) in recognition of its internationally important population of native white-clawed crayfish.

Ensor's Pool lies on the western edge of Nuneaton (NGR: SP 348903) in the north of Warwickshire and formed in an abandoned clay pit. It is 3.5 hectares in size with a perimeter of approximately 770 metres with an average depth of 8 metres and is fed by groundwater. The pool overlies Etruria Marl which was extracted for brick making earlier last century; vehicular access is located off Bermuda Road, Nuneaton.

The aim of this project is to determine presence and provide an indication of the size and health status of the white-clawed crayfish *Austropotamobius pallipes* population in Ensor's Pool Site of Special Scientific Interest (SSSI)/Special Area of Conservation (SAC).

Survey Objectives

A. Determine the presence/absence of white-clawed crayfish at Ensor's Pool.

B. Provide an indication of the size of the white-clawed crayfish population.

C. Supply a suitable sample of crayfish for health examination.

D. Compare the results of this survey with previous reports, suggesting possible reasons for any observed changes.

2.0 Methodology

The survey was carried out between 22nd and 24th September 2014.

As the site has a high level of public use, particularly dog walking and is popular meeting point for children and teenagers, interference with the traps was perceived to be a problem. To overcome this it was decided to set the traps on lines from a boat away from accessible areas of bank.

On 22nd September 2014, 80 crayfish traps baited with kipper and compliant with the Crayfish Byelaw (2005) were set in areas containing habitat suitable for crayfish in margins and deep water.

David Rogers Associates liaised with the Environment Agency regarding the supply of a sample of crayfish to Cefas for disease examination.

The traps were left overnight, pulled up the following day, re-baited and reset in other suitable areas for crayfish. The traps were retrieved on 24th September.

Manual search of suitable refuges in the accessible water margins and sweep net search for juveniles within submerged aquatic vegetation was undertaken.

3.0 Results

Despite extensive searching and use of a large number of traps, no crayfish (of any species) were caught or seen during this survey. Also no crayfish carcasses or remnants were found.

The table below charts the history of catches at Ensor's Pool.

Table 1. Comparison of crayfish surveys at Ensor's Pool

Date of survey	Method	No of traps	Total catch	CPUE	Total male	Total female	Thelohania
Unknown	Traps	39	63	**1.6**	-	-	0
Unknown	Traps	39	58	**1.5**	29	29	0
March 1992	Traps	40	168	**4.2**	133	35	0
April 1992	Traps	40	127	**3.2**	106	21	1 (1.5%)
Sept 2000	Traps	40	45	**1.1**	25	20	1 (1.5%)
Sept 2000	Traps	40	112	**2.8**	56	56	4 (1.8%)
Aug 2005	Traps	72	172	**2.4**	100	72	3 (5.13%)
Sept 2005	Traps	80	73	**0.9**	36	37	1 (0.73%)
Aug 2008	Traps	160	194	**1.2**	92	102	4 (2.1%)
Sept 2012	Traps	160	262	**1.6**	119	143	6 (2.3%)
Sept 2014	Traps	160	0	**0**	0	0	-

4.0 Discussion

The results show that the once abundant population of white-clawed crayfish seems to have disappeared.

The pool still appears to provide a suitable habitat for crayfish with abundant emergent and submerged vegetation, undercut banks providing potential refuges and shelter from predator and there appears to be good crayfish habitat around all of the pool except for the shallow clay bank at the southern end where no vegetation or other refuges are present.

There is no indication that any other animal or plant species has been affected. Fish were seen in the waters and invertebrates appeared in hand net samples as on previous occasions. The vegetation was as it appeared on previous occasions.

It was reported during the survey that white-clawed crayfish had been observed by torching at the site in October 2013 but were not found during night searching in July and early August 2014 (Anton Irving, (NE) pers. comm.).

No signal crayfish were found during the survey and there is very little likelihood of signal crayfish being able to colonise the site independently as the site has no inflows or outflows and there are no streams in the vicinity, the pool is fed by a combination of local drainage and groundwater.

It was reported to the Environment Agency and Natural England that one signal crayfish was released into Ensor's Pool in July 2005. This signal crayfish may have been carrying crayfish plague and was a significant risk to the Ensor's Pool white-clawed crayfish but there was no observed mortality amongst the white-clawed crayfish since 2005 until the present situation. The individual released in 2005 could be between 10 and 20 years old or may have died (Signal crayfish can live for up to 20 years). When signal crayfish are weakened or die there is the opportunity for plague that they are carrying to grow because the immune system of the signal is weakened or absent, this is a situation that would inevitably occur with the introduced signal to Ensor's. Plague spores arising from this signal crayfish could be the route of infection of the white-clawed crayfish and the cause of their mortality and disappearance.

Crayfish plague has also been an on-going threat to the white-clawed crayfish at Ensor's as it can be transferred on fishing and other equipment. Although angling is prohibited on Ensor's Pool, unauthorised fishing does take place. During the survey there was a lot of interest from recreational users of the pool, some of whom were not aware of the crayfish population and the conservational value of the site despite signs at the entrances.

As nothing other than the white-clawed crayfish appears to have been affected at Ensor's Pool it seems likely that the population has been killed by crayfish plague and the timing of the mortality appears to be between October 2013 and July 2014 with no evidence of their presence remaining now

Given the lack of evidence of the cause of mortality, it is too early to assess the viability of any re-introduction programme. To try to gather further information, it is recommended that this survey is repeated next year to further verify absence of white-clawed crayfish and determine whether signal crayfish are present.

It is also recommended that a thorough survey of Walkmill Clay Pit SSSI is undertaken because this would now appear to be the only remaining water body supporting white-clawed crayfish amongst the designated group of pools in the Midlands.

Photo 1. Ensor's Pool survey 2014