



## The Nottinghamshire Crayfish Initiative

### Final Report

March 2012

Summary

During 2011/12 the Nottinghamshire Crayfish Initiative took forward work to support a number of activities to further the conservation of the native white-clawed crayfish, *Austropotamobius pallipes* in Nottinghamshire. The Nottinghamshire Crayfish Initiative sought to undertake four main areas of work during 2011/12. These were:

- supporting the Nottinghamshire Crayfish Group and enabling members to gain more experience of working with the white-clawed crayfish,
- coordinating survey work across the county,
- maintaining a comprehensive data base for all species of crayfish recorded in the county of Nottinghamshire, and
- identifying the potential for crayfish ARK sites within Nottinghamshire.

Nottinghamshire crayfish group training

During 2011 a number of training opportunities were offered to members of the Nottinghamshire Crayfish Group to increase their knowledge of surveying for crayfish species. Six field surveys were arranged between July and October to survey sites for the white-clawed crayfish and a further field visit was arranged to a signal crayfish, *Pacifastacus leniusculus* site in November 2011. The field visits were arranged at a number of different locations in different catchments across the county and involved a range of survey techniques including netting, rock turning and torchlight surveys.

The survey work for white-clawed crayfish was all undertaken in the presence of a person holding a current licence to survey for white-clawed crayfish (either Alison Sharkey or Dr David Holdich).

The table below lists the sites visited as part of the survey work during 2011 and also lists the number of people from the Nottinghamshire Crayfish Group who attended each event.

<b>River Catchment</b>	<b>Site/Location</b>	<b>Date</b>	<b>Number of members present from the Notts Crayfish Group</b>
Leen	Bestwood Country Park	07.08.11	11
Leen	Linby Quarries SSSI	16.08.11 (evening)	9
Leen	Papplewick Dam	16.10.11	12
Erewash	Nethergreen Brook & Beauvale Brook	10.09.11	6
Erewash	Beauvale Brook	19.10.11 (evening)	8
Ryton	Shireoaks Hall	25.09.11	4
Greet	Far Corkhill Farm	13.11.11	8

The future aims for group will be to try to discover the full extent of white-clawed crayfish distribution in the county and to try to monitor the existing known populations. In addition, it is hoped that the group can help with survey work to establish the full distribution of invasive non-native species of crayfish across Nottinghamshire with particular focus on the American signal crayfish.

Part of this future work will be dependent on the most competent and committed members of the group being successful in their applications to Natural England for survey licences for white-clawed crayfish.



**Nottinghamshire Crayfish Group: Survey of the River Greet at Far Corkhill Farm.**

Survey work

In addition to the survey work undertaken by the Nottinghamshire Crayfish Group during 2011 there was also work undertaken by the Environment Agency (EA), and in addition any incidental records and crayfish records picked up through surveys carried out in support of planning applications were passed on to Chris Jackson from Notts BAG partner organisations.

In December 2010, Chris Jackson met with officers from the EA and Dr David Holdich to discuss plans to survey for white clawed crayfish during 2011. As a result of this meeting it was agreed that the following catchments would be surveyed by the following groups:

<b>River Catchment</b>	<b>Lead Organisation/ Officer</b>
River Leen	Notts Crayfish Group
River Erewash	Environment Agency (Anja Randeria)
River Maun	Environment Agency (Kathy Hughes)
River Meden	Environment Agency (Martin Winter)
River Ryton (Shireoaks Hall)	Notts Crayfish Group

Unfortunately, due to staff changes at the EA and the withdrawal of available staff from the EA ecology team after June 2011 (both Kathy Hughes and Anja Randeria left the Biodiversity and Fisheries Team) less survey work was undertaken by the EA than expected during 2011. The work that was completed focussed on the River Erewash catchment and there was no survey work undertaken on either the River Maun or the River Meden as previously planned.



**White-clawed Crayfish Survey - Papplewick Dam.**

#### Crayfish Records - The county inventory

During 2011 a total of 32 records of white-claw crayfish and 14 records of signal crayfish were obtained from various sources.

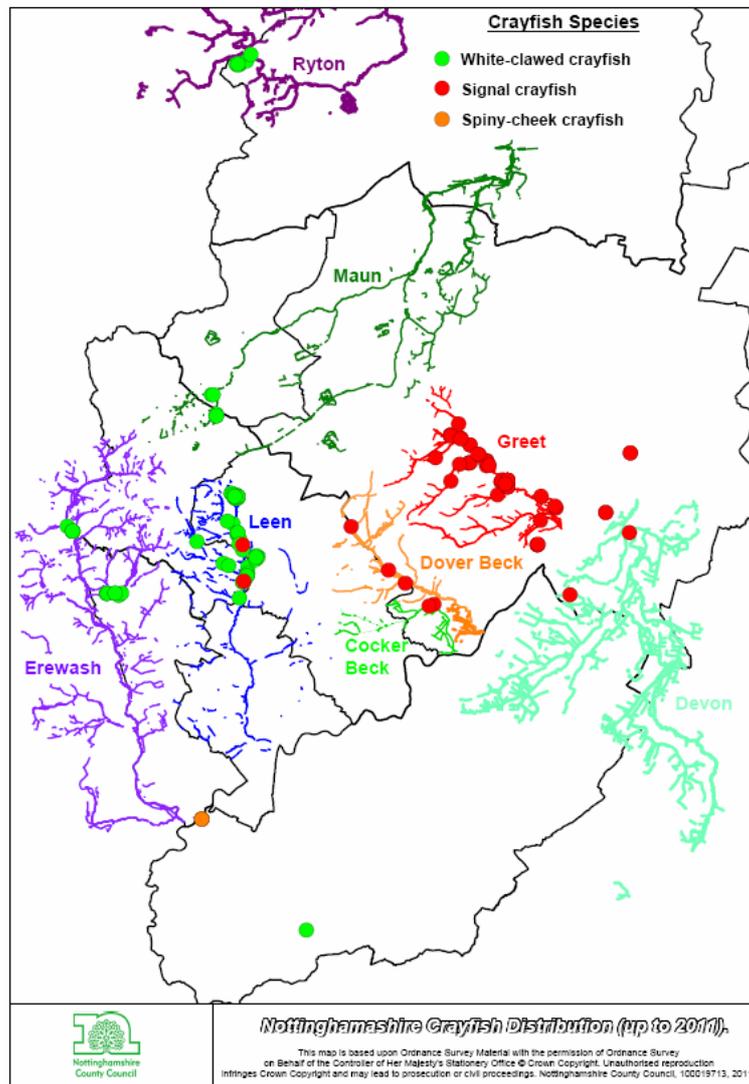
All of the records were added to the county inventory for crayfish and at the end of the survey season the records were passed on to staff at the EA, the Nottinghamshire Biological and Geological Records Centre (NBGRC) and to Dr David Holdich. These three organisations/individuals had kindly passed on all their records to Notts BAG during 2010 when a combined database of records for the county was first created.

The most notable records received during 2011 are listed below.

- White-clawed crayfish confirmed at Jacksdale - as a result of crayfish trapping undertaken by the EA during June 2010, the record of native crayfish identified in routine survey work during 2010 was confirmed. The trapping caught a small number of both male and female white-clawed crayfish and included a berried female, thus confirming the presence of a breeding population at this location.
- Signal crayfish at Bestwood Country Park - during early August 2011 an individual signal crayfish was caught by the Nottinghamshire Crayfish Group on the River Leen at the Mill Lakes site in Bestwood Country Park. This was very concerning as the River Leen catchment is the main stronghold of native white-clawed crayfish in Nottinghamshire. Fortunately the signal crayfish in question was sent to CEFAS (Government laboratories) for tests and later confirmed to not be infected with crayfish plague. As a result of the signal crayfish record, further survey work was carried out on a 1km stretch of the River Leen upstream of the location and on sites directly downstream from the survey location. These surveys only identified the presence of white-clawed crayfish upstream of this location and no further signal crayfish were caught upstream or downstream. It is hoped that the signal crayfish was an individual released by a member of the public. The presence of this individual and the individual found at Moor Pond

Wood (another public location within the River Leen catchment) highlights the need to remain vigilant in this well populated catchment.

- White-clawed Crayfish mortality on the River Ryton - on 18<sup>th</sup> August “several” dead white-clawed crayfish were reported by a member of the public on the River Ryton near Shireoaks. This report was followed up by an officer from the EA and a number of the dead white-clawed crayfish were sent away to CEFAS for tests. The results revealed that none of the crayfish were infected with crayfish plague. Further survey work undertaken by the Nottinghamshire Crayfish Group in September did not identify any live white-claw crayfish in the River Ryton at Shireoaks but did identify a few remains that were probably associated with this earlier mortality. The discovery of dead white-clawed crayfish on the River Ryton offers the prospect that an as-yet undiscovered population may exist upstream of this location on the River Ryton and future survey work should target upstream sites to see if this is the case.



- A good population of white-clawed crayfish at Shireoaks - during September the Nottinghamshire Crayfish Group visited Shireoaks Hall and the adjacent grounds of Shireoaks Park. The park is a network of channels and ornamental water gardens that had previous records for white-clawed crayfish (last recorded in May 2004). The survey sought to identify the continued presence of white-clawed crayfish at the site and to find out how widespread the white-clawed crayfish were in the network of pools and channels at Shireoaks Park. The results of the survey confirmed the continued presence of the native crayfish and also confirmed that populations were widespread from the stream feeding the main circular pond in

the west, along the main network of weirs and channels and an individual was found in the deep linear water body located to the west of Shireoaks Hall. The water levels at the site were of some concern as many of the channels were very low in water and crayfish were found under rocks in very shallow pools. The low water levels were reported by the landowner to be as a result of pumping being undertaken at the nearby Steetley Quarry.

- A high population density of white-clawed crayfish found at Papplewick Dam - during October the Nottinghamshire Crayfish Group visited Papplewick Dam to get an idea of population density of white-clawed crayfish at this publicly accessible site. The survey followed the systematic survey technique advised by Peay (selection criteria for “ark sites” for white-clawed crayfish, 2009). The results of the survey indicated that the population density was very high, indicating very good habitat for the native crayfish. In total, over 90 crayfish were recorded at the site indicating that the site is one of the best in the county. As a further development a new record for the Linby Brook was obtained from this site visit. The brook that flows from the west to the River Leen joins the main river in the middle of the Papplewick Dam site.
- White-clawed crayfish still present on the Nethergreen Brook and Beauvale Brook – during June staff from the EA visited both of these sites (tributaries of the River Erewash) and recorded white-clawed crayfish at both sites. Later in the year both sites were visited by the Nottinghamshire Crayfish Group who also recorded the presence of white-clawed crayfish. The previous known records had been recorded in 2004.

Other crayfish data obtained during 2011 was obtained from survey work undertaken by EMEC on the River Leen at the Mill Lakes in Bestwood Village and from an incidental record sent to Notts BAG from NE staff and also from a record sent to the EA by a member of the public.

In January 2012 a paper produced by Dr David Holdich, with support from Chris Jackson, was published (see below). This document was produced as the proceedings of a conference held in November 2010 in Bristol. The conference aimed to look at the conservation of white-clawed crayfish in the coming years. The paper sought to tell the history of crayfish records in Nottinghamshire and the distribution of crayfish species across the county. It was hoped that this might encourage other counties to undertake similar exercises. A pdf of the paper can be obtained from David Holdich ([david.holdich@ntlworld.com](mailto:david.holdich@ntlworld.com)) or from Chris Jackson ([chris.jackson@nottsc.gov.uk](mailto:chris.jackson@nottsc.gov.uk)).

Holdich, D. M. & Jackson, C. (2011). The crayfish of Nottinghamshire. In: Species survival: securing white-clawed crayfish in a changing environment. (Rees, M. Nightingale, J. and Holdich, D.M., eds), pp. 153-174. Proceedings of a conference held on 16<sup>th</sup> and 17<sup>th</sup> November 2010 in Bristol, UK.

#### ARK sites

As part of this funding work was undertaken to identify sites that have the potential to be considered as ARK sites within Nottinghamshire. Sites were selected if they were water bodies in the magnesian limestone belt that runs up the western side of Nottinghamshire or if they were on sites of redundant gypsum workings. These sites were chosen as they were likely to have the calcium inputs to the water body to support crayfish populations.

When sites had been identified they were then assessed against the five initial criteria developed by Stephanie Peay to assess the site suitability. This preliminary assessment was solely an initial investigation into site suitability and it is acknowledged that each site would require further investigation using Peay’s second stage selection criteria.

The five questions asked of each site were:

1. the known presence of Non-native Invasive Crayfish Species (NICS) -Yes/No
2. lack of permanent water - Yes/No/Unknown

3. insufficient physical isolation to avoid colonization by NICS - No of metres from water course and nearest NICS  
 4. poor water quality - Poor/Good/Unknown  
 5. the known presence of white-clawed crayfish - Yes/No

<i>Sites on the Magnesian Limestone</i>	<i>NICS</i>	<i>Permanent Water</i>	<i>Physical Isolation</i>	<i>Water Quality</i>	<i>Native Crayfish</i>
Langold Lake	No	Yes	Connected to tributary of River Ryton	Unknown	No
Carlton Lake	No	Yes	Connected to tributary of River Ryton	Unknown	No
Steetley Quarry (Armstrong Quarry)	No	Yes	River Ryton - 1.25km Connected by brook	Unknown	No
Lady Lee Quarry	No	Yes	River Ryton - 180m	Unknown	No
Langwith Pond	No	Yes	Connected to tributary of River Poulter	Unknown	No
Cuckney Dam	No	Yes	Connected to tributary of River Poulter	Unknown	No
Shirebrook Ponds	No	Yes	River Meden - 1.1km connected by brook	Unknown	No
Littlewood Quarry	No	Yes	River Meden - 400m	Unknown	No
Linby SSSI	No	Yes	River Leen - 200m	Unknown	No
Farleys Brook	No	Yes	River Leen - connected via two consecutive culverted sections	Unknown	No

<i>Sites on old Gypsum Workings</i>	<i>NICS</i>	<i>Permanent Water</i>	<i>Physical Isolation</i>	<i>Water Quality</i>	<i>Native Crayfish</i>
Langar Fishing Ponds	No	Yes	Connected by drain to River Smite River Whittling - 790m	Unknown	No
Kilvington Lakes	No	Yes	River Devon - 40m	Unknown	No
Staunton Quarry	No	Yes	River Devon - 1.3km Connected by Back Dyke	Unknown	No
Bantycok	No	Yes	River Devon - 2km	Unknown	No

From the information above, Littlewood Quarry and Bantycok both look to have good potential as ARK sites and require further investigation. However, both are currently active quarries and the restoration for both sites is yet to be completed and as such further research should be put on hold. Of the other sites investigated Lady Lee Quarry, Linby Quarry, Staunton Quarry and Steetley Quarry look to warrant the strongest cases for further investigation due to their isolation from the river and stream network. This work will be advanced in 2012.

#### Awareness raising.

In March 2011 a new leaflet was published by Nottinghamshire County Council with funding from their Local Improvement Scheme. The leaflet highlights the issues facing the conservation of white-clawed crayfish within Nottinghamshire and will be distributed to landowners and angling clubs within Nottinghamshire.

### Future Work Programme

In future years the information gathered and experience gained over the previous two years will enable the Nottingham Crayfish Initiative to develop and support work to benefit the white-clawed crayfish.

The primary focus of future crayfish work in Nottinghamshire should focus on:

- Undertaking survey work to ensure that the current data is available to ensure that native crayfish populations are protected by the local wildlife sites criteria.
- Undertaking survey work to ensure that the extent and spread of invasive non-native crayfish species is monitored.
- The work to identify ARK sites is taken further with detailed site surveys undertaken at sites that have been identified as part of the desktop exercise in this report.
- To continue to raise awareness of crayfish issues in Nottinghamshire (especially amongst anglers and landowners).