

## White-clawed crayfish (*Austropotamobius pallipes*) SAP



### Objectives

1. To maintain the range of the white-clawed crayfish within the National Park
2. To maintain the population density of the white-clawed crayfish within the National Park

### Introduction

The white-clawed crayfish (*Austropotamobius pallipes*) is the only native freshwater crayfish in Britain. It gets its name from the pale undersides of its claws, the rest of the crayfish being a dark greenish brown. Native crayfish can be found in a range of still and flowing freshwater habitats. Their diet mainly consists of fallen leaves and aquatic plants, but may also include some animal food such as snails and caddis-fly larvae, dead fish or even other crayfish. They survive best in calcareous, clear, well-oxygenated water with little sedimentation and few pollutants. They are eaten by many species of fish, birds, rats, mink and otters, so shelter is essential to their survival. This is provided by overhanging banks, submerged vegetation, cobbles, rocks, roots, woody vegetation and water-saturated logs. The white-clawed crayfish must also use shelter to avoid being washed away when streams are in spate after snow or heavy rain.

White-clawed crayfish are most active in the summer, when the water in the streams is at its warmest, there is plenty of food and they can grow well. In the autumn the male crayfish go out at night looking for a mate. After mating the females lay a clutch of up to 100 tiny eggs which they keep attached under their tails throughout the winter. Crayfish do not hibernate, but they are not very active in the winter, when the water is cold and there is a much greater risk of high flows. The females release their young in June. They look after them for only a day or two before the young ones are on their own. Most are eaten by aquatic insects, fish, or other crayfish or are lost in floods. Some survive to breed themselves after about three years. A few may survive for 10 years or more.

White-clawed crayfish are good indicators of a healthy river as they are vulnerable to pollution such as from urban areas or farms. Sheep dips are especially harmful to crayfish and to many other kinds of river life.

During the 1970s and '80s the white-clawed crayfish suffered a drastic fall in numbers and many populations became locally extinct across England. The main reason for this dramatic decline was the introduction of the American signal crayfish (*Pacifastacus leniusculus*) from fish farms. Signal crayfish are bigger and more aggressive predators, capable of out-competing and preying on their smaller native relatives. Signal crayfish can also carry the fungal pathogen (*Aphanomyces astacii*), commonly referred to as crayfish plague, which can kill off native crayfish populations within weeks. The pressures from signal crayfish, alongside the intensification of agriculture and the consequent general reduction in our nation's water quality (due to sedimentation and chemical runoff), severely threatened the survival of the native crayfish in the UK.

Since the formation of the National Rivers Authority in 1989, water quality across Britain has improved significantly. Despite this, the steady increase in signal crayfish populations means that white-clawed crayfish are still in decline. No crayfish farms were registered within the National Park before the creation of the 'no-go' area for the stocking of signal crayfish in 1996, and signal and other non-native crayfish were originally believed to be absent from rivers in the North York Moors. However non-native crayfish have been found in two locations within the North York Moors. They have been recorded at Long Beck near Byland Abbey and at Boa's Gill, Kilburn.

Surveys on the Derwent in Forge Valley during 1996 and 1997 showed it to have one of the best populations of white-clawed crayfish in the UK. Unfortunately in 2007 the Environment Agency surveyed and confirmed the presence of signal crayfish in Settrington Beck (just outside the National Park boundary, but within the Derwent catchment). Signal crayfish are quite widespread in the beck and if they have not yet reached the main river Derwent, they may well be getting very close to it by now. Signal crayfish are reported to move 1km per year.

Non-native crayfish were also found in the River Hertford at Ganton (again outside of the Park boundary, but just upstream of the Derwent confluence) in one of EA's 2007 biology samples. There is no known method at present to remove non-native crayfish from a water catchment without also severely harming native crayfish and other wildlife.

In the distant past surveys along the River Rye have shown a healthy white-clawed crayfish population, but surveys carried out in 2008 suggest that this population has been declining in recent years. This noticed decrease could be as a result of the severe flooding in 2005. Yet in 2010 good numbers of white-clawed crayfish were present in the River Rye, at Duncombe Park, Helmsley which is good news - see **Crayfish Rescue on the River Rye case study** below.

No crayfish have ever been recorded in the Esk, the water is thought not to have high enough calcium content for shell formation.

### **Progress (2008-2012)**

- NYMNP staff contributed to the Environment Agency Yorkshire Crayfish Strategy. This outlines the current and future status of the white-clawed crayfish, the need to control non-native crayfish, designating areas as Ark sites or SACs, identifying areas for introduction / re-introduction, identifying donor populations of white-clawed crayfish, along with education and immediate priorities.
- Lake Gormire was surveyed in September 2008 for any remaining crayfish populations, and for its invertebrate interest, for potential inclusion as a refuge Ark site. No crayfish were found, and the lake was thought to be too silty to present a good quality re-introduction habitat. The adjacent Buttermere Lake did have a lot of submerged tree roots, and could potentially harbour crayfish as an Ark site.
- This SAP aimed to survey the River Rye to look at white-clawed crayfish populations post the dramatic 2005 flooding events. Ten surveys were completed in 2008 and located only a very small number of white-clawed crayfish present on the Rye. It also picked up invasive signal crayfish on the lower reaches of this catchment, and indicated that signals are now spreading upwards.  
The numbers of white-clawed crayfish in the River Derwent were once so high that it was suggested by a consultant to make it a Special Area of Conservation (SAC). New surveys (ten surveys in 2008) of the River Derwent show that this number has declined, and that there are now invasive signal crayfish on the lower reaches on the river making an inexorable migration up-stream.

- At the beginning of the SAP in 2008 it was proposed that conifer removal from the riparian zone, where white-clawed crayfish are known, should take place to create a 5m buffer zone either side of the water-course. However no requirement has been perceived to date.
- NYMNPA staff sent twenty EA crayfish leaflets for Yorkshire to Ryedale Anglers Club. The leaflet gives basic details of good practice for anglers and other river users to prevent the spread of crayfish plague and invasive Signal crayfish. The initial goal of distributing 50 leaflets was not achieved.
- Action has been taken to investigate potential Ark sites in and close to the North York Moors, in particular surveying Lake Gormire. However this action should be a major priority for the future LBAP to fully assess the potential for Ark sites to ensure work can be carried out to help our native crayfish.

## **Case Study**

### **Crayfish Rescue on the River Rye (Duncombe Park)**

By Simon Hirst, River Esk Officer NYMNPA

An emergency crayfish rescue operation was carried out by National Park staff, apprentices and volunteers on the River Rye in Duncombe Park on 30 July 2010.

The River Rye is one of only a few rivers in the North East of the country which supports a population of the “Globally Threatened” White-clawed Crayfish (*Austropotamobius pallipes*).

The sustained period of dry weather in July 2010 and the numerous sink holes that are present in this section of the Rye in Duncombe Park, Helmsley, caused a large number of fish and crayfish to become stranded.

This operation resulted in over 500 White-clawed Crayfish being rescued along with a variety of fish species - Bullhead (500+), Brown Trout (5+), European Eel (1) and Brook Lamprey (20+).

The white-clawed crayfish rescued comprised a wide range of sizes from juveniles up to mature adults, indicating that the population is recruiting which is an excellent sign. The crayfish and fish were moved upstream above the sink holes to a safe haven!