

The Barle Crayfish Project: Assessing Male Sterilisation as a Signal Crayfish Control Technique

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River Barle, Brightworthy, Exmoor

Methods

The study area is 1.5km of the River Barle. This year's work is based on weekly trapping by 10 – 15 volunteers using baited traps and artificial refuges placed at 10m intervals. Male crayfish over carapace length 40mm are sterilised manually and returned, whilst all other animals are humanely despatched. Success of the method will be measured by monitoring invertebrates, fish, young-of-year and berried female crayfish between 2015 and 2018.

Volunteer processing a crayfish



Background

The River Barle Site of Special Scientific Interest (SSSI) in Exmoor National Park, SW England, is noted for its unmodified ecosystem and salmonid fisheries. Signal crayfish have colonised 15km of the SSSI including important salmon spawning grounds. Although native crayfish are absent from the Barle the risks to the SSSI, salmonids and the river's Water Framework Directive status are of major concern.

The project is subject to PhD research by N. Green supported by Bournemouth University and the Centre for Environment, Fisheries and Aquaculture Science (CEFAS).



Artificial refuge and baited trap in situ

Local ownership

Volunteers are at the heart of the project, which aims to pass ownership to local people. Crayfish control and possible eradication will require a long term effort - such efforts need to be community led and not reliant on external funding. The project provides capital equipment, training and support to local volunteers, allowing them to develop the skills and confidence necessary to take ownership of crayfish control on their local river and sustain efforts over the long term.

Rationale

Conventional baited trapping tends to catch large adults. Large males control breeding behaviour so their sterilisation and return maintains dominance whilst preventing successful mating. We believe the addition of intensive trapping using artificial refuges will additionally remove a wide range of size classes, making the method more effective.

Results

Between 5th May and 28th October 3334 crayfish were removed from the river and 433 males were sterilised and returned. Sterilised males represent roughly 20% of all males and 11% of all crayfish caught. Artificial refuges have proved far more effective than baited traps. The main constraint has been high flow events which affect safe working and reduce crayfish activity.

Sterilising an adult male

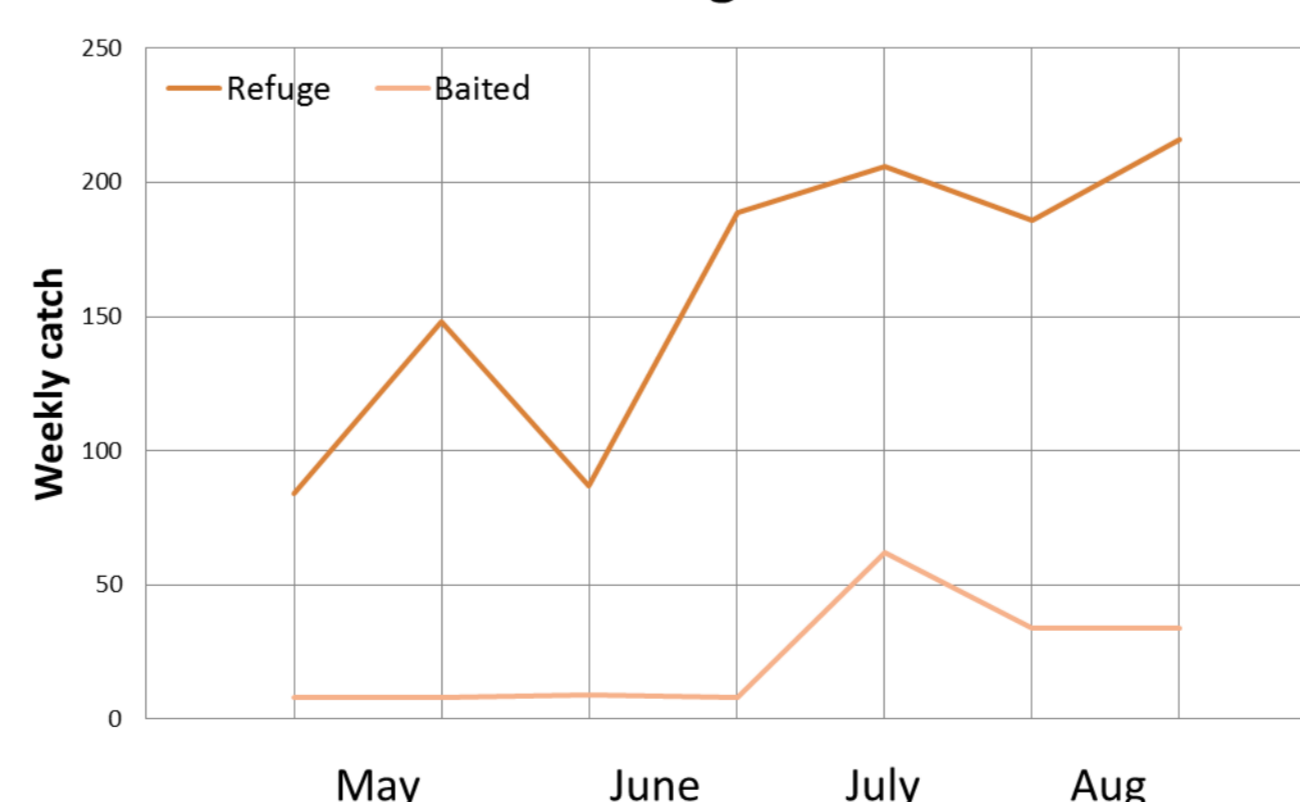


Objectives

The project and PhD study aim to determine:

- The effectiveness of male sterilisation as a control technique
- The most efficient capture techniques for an upland spate river
- The percentage of males that need to be sterilised to cause population decline
- The level of population reduction that will initiate positive effects on the ecosystem
- The likelihood of signal crayfish being eradicated using this method

Comparison Of Baited Traps vs Artificial Refuges



Support

The project is steered a local partnership including Exmoor National Park Authority, Environment Agency, River Exe and Tributaries Association and the River Barle Fishing Club. It has received funding and in-kind support from the Exmoor National Park Partnership Fund, Natural England, Environment Agency, CEFAS and Heritage Lottery Funding through the Heart of Exmoor Scheme. The Fish Health Inspectorate licences the return of sterilised crayfish to the river.