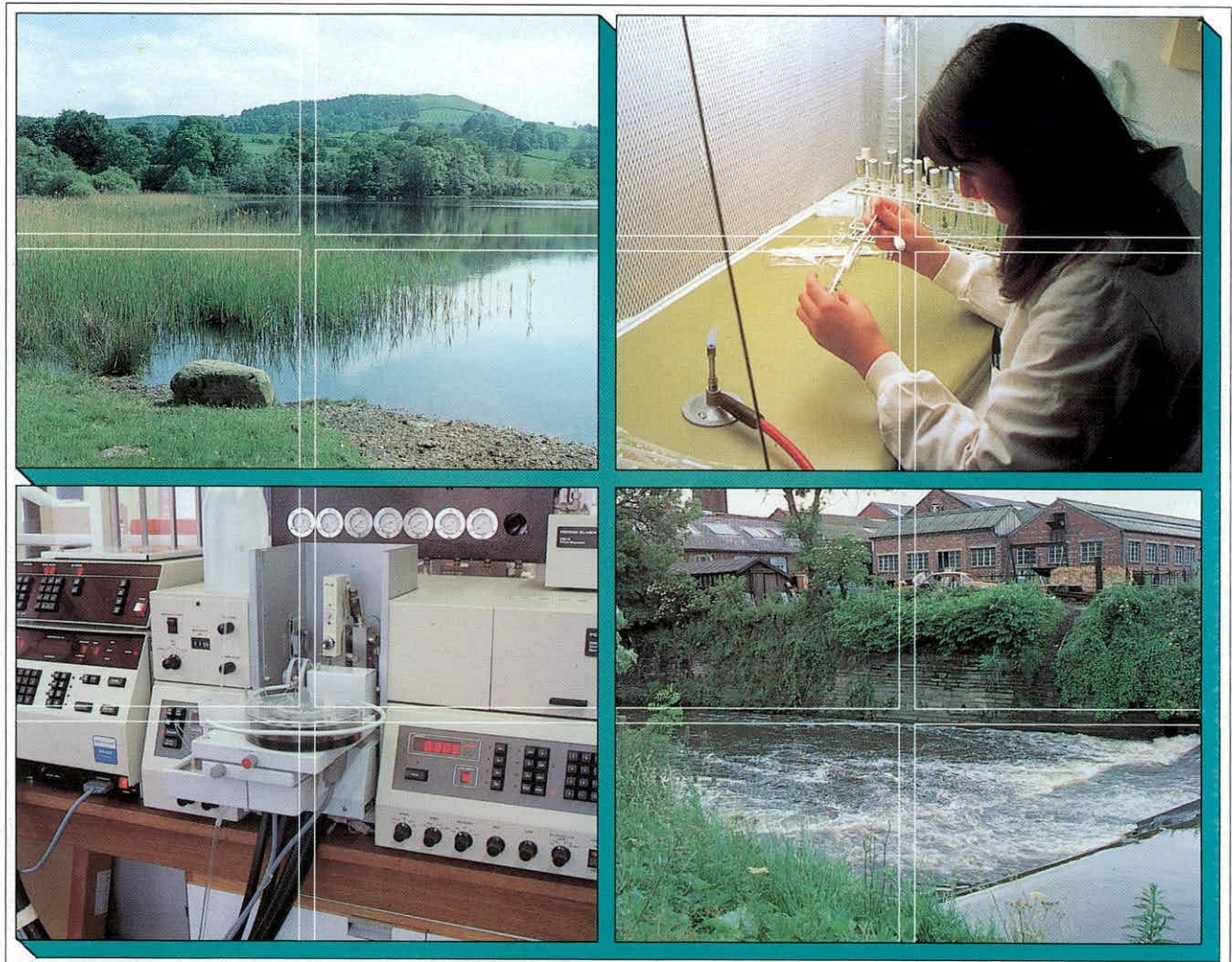


R Lab

# River Mells Fisheries Survey 1998.

**A.C. Pinder  
J. Leach  
A.T. Ibbotson**

Report to: ARC Southern.  
IFE Report Ref No: T110501J





**Institute of  
Freshwater  
Ecology**

**River Laboratory**  
East Stoke, Wareham  
Dorset, BH20 6BB  
United Kingdom

Telephone +44 (0)1929 462314  
Facsimile +44 (0)1929 462180  
E-mail

# River Mells Fisheries Survey 1998.

A.C. Pinder  
J. Leach  
A.T. Ibbotson

|                          |                  |
|--------------------------|------------------|
| Project Leader:          | A.T. Ibbotson    |
| Report Date:             | 02.07.98         |
| Report To:               | ARC Southern     |
|                          | Oxford Office    |
|                          | Stanton Harcourt |
|                          | Witney           |
|                          | OXON OX8 1BJ     |
| IFE Report Reference No: | T11050J7         |
|                          |                  |

**Centre for  
Ecology &  
Hydrology** Institute of Freshwater Ecology  
Institute of Hydrology  
Institute of Terrestrial Ecology  
Institute of Virology & Environmental Microbiology

Natural Environmental Research Council

## **INTELLECTUAL PROPERTY RIGHTS**

### **CONFIDENTIALITY STATEMENT**

*'In accordance with our normal practice, this report is for the use only of the party to whom it is addressed, and no responsibility is accepted to any third party for the whole or any part of its contents. Neither the whole nor any part of this report or any reference thereto may be included in any published document, circular or statement, nor published or referred to in any way without our written approval of the form and context in which it may appear.'*



## Executive Summary.

1. The Finger Valley Stream and the Leigh Wood East spring were both sampled for fish and crayfish on 28 April 1998.

2. Brown trout *Salmo trutta*, Stoneloach *Barbatula barbatula* and Bullhead *Cottus gobio*, were all found to be present in section one of the Finger Valley Stream. No fish were found to be present in section two of this stream and no fish were found in the Leigh Wood East Spring.

3. A hand search of the stream bed was carried out for crayfish on both streams but these were found to be absent at both sites.

## **Introduction.**

The Bector Wood Stream, Whitehole Farm Spring and the Chantry Springs watercourse were all sampled for fish and crayfish on 27 June 1995. At the time of this original survey, the Leigh Wood East Spring and the Finger Valley Stream were dry.

To assess whether these two streams are utilised by brown trout (*S. trutta*) over the spawning period a survey needed to be carried out while the streams were still in full flow, post the trout hatching season.

Both the Leigh Wood East Spring and the Finger Valley Stream were sampled for fish and crayfish on 28 April 1998.

## **Methods.**

Both streams were electric fished using an IFE/Deka battery operated electric fisher with a single anode. Sections of the stream were confined using stop nets and/or natural barriers ie waterfalls and where fish were present, electric fished three times to obtain population estimates.

The fork length (FL) of all fish captured were measured to the nearest mm, and scales were taken for age analysis.

## **Population estimates.**

Population estimates (exact minimum likelihood) were calculated using the IFE "remove" program. Data are presented for: catch (C); estimated population number (N); the value of two times the standard error of the population estimate (SE\*2) which approximately equals the 95% confidence limit of the estimate; capture efficiencies (P); and fish population densities (D).

Specifically at each site the following operations were carried out.

#### Finger valley Stream.

Two sections of this stream were sampled. (Fig 1.) Section 1 being where the stream flows over a grass meadow between the confluence with the River Mells and the waterfall just down stream of the road bridge. A stop net was secured 5 metres up stream of the confluence with the River Mells, with the waterfall forming the upstream boundary of the section. As fish were present in this section electric fishing was carried out three times to obtain a catch depletion population estimate.

Section 2 of the Finger valley Stream was immediately upstream of the road bridge. The downstream boundary being the waterfall at the top of section 1 and the upstream boundary being a stop net a distance of 50 metres further upstream. As no fish were caught or seen in this section electric fishing was only carried out twice.

#### Leigh Wood East Spring.

Only one section was electric fished on this stream. (Fig 2.) The downstream boundary being a stop net secured 5 metres upstream of the confluence with the River Mells and the upstream boundary being a series of substantial cascades 70 metres further upstream. As no fish were caught in this section only two electric fishing operations were carried out.

#### Crayfish.

A hand search of the stream bed was carried out in section 1 of the Finger Valley Stream and at Leigh Wood East spring. No crayfish were caught during the hand searches, or observed while electric fishing either stream.

Figure 1 . Sections sampled on the Finger Valley Stream

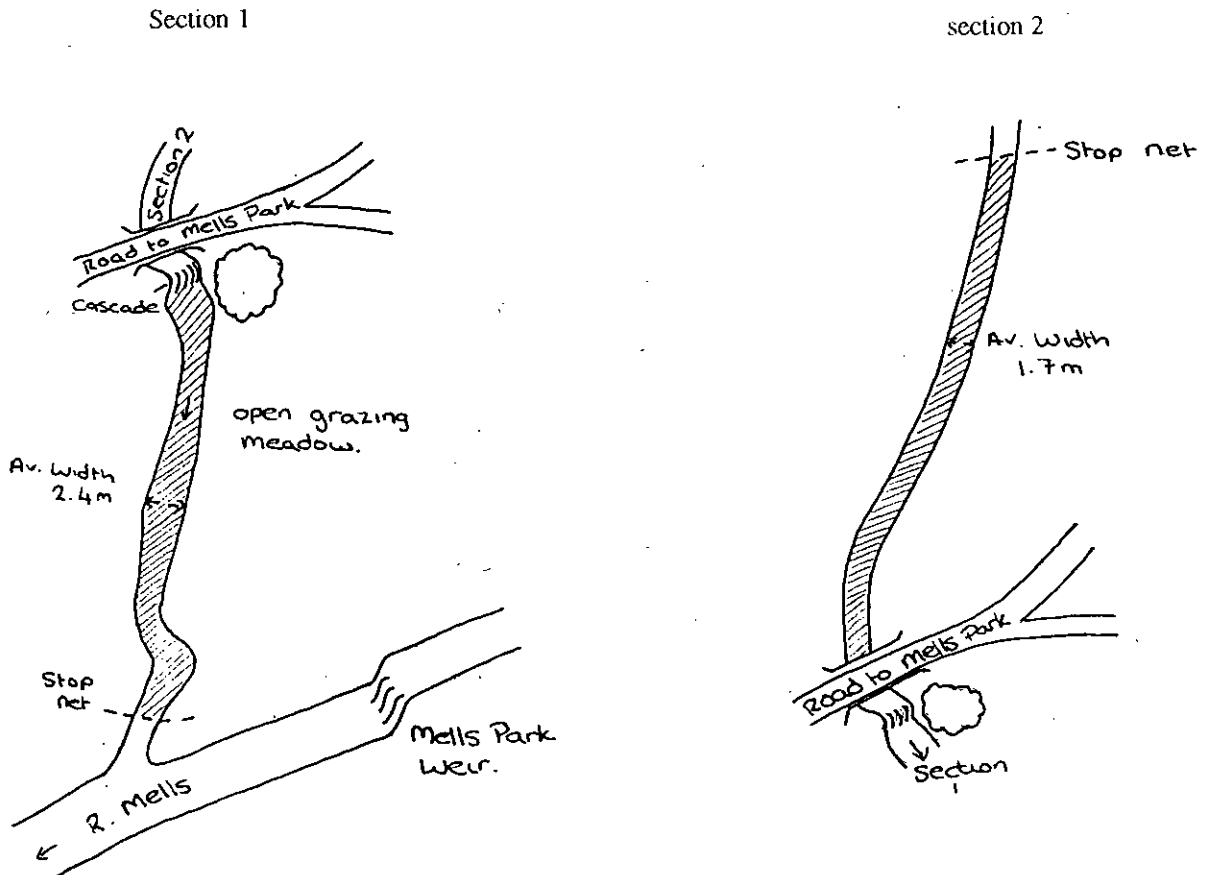
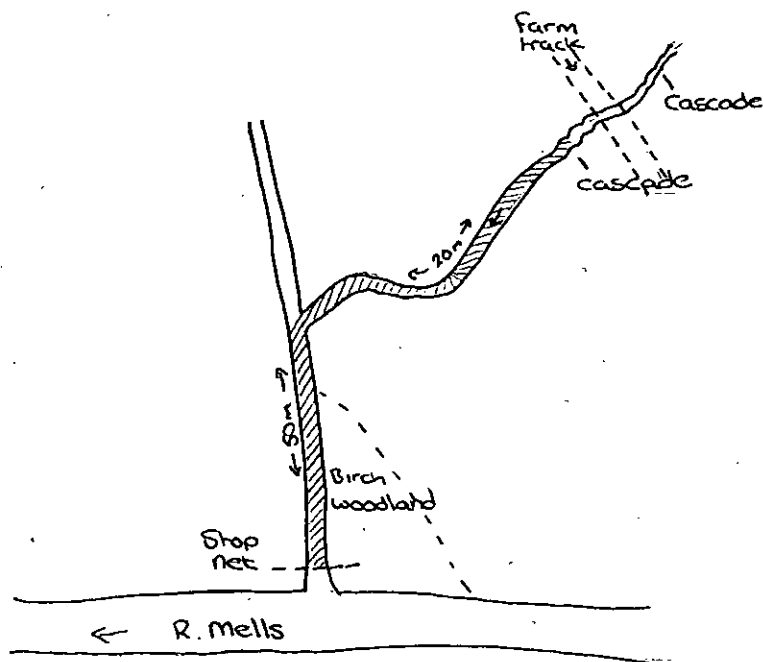


Fig 2. Section sampled of Leigh Wood East Spring.





## Results.

Finger Valley stream.

### Section 1.

Ten brown trout were captured in total over the three fishings of section one. Eight of these were in the 1+ age group with the larger specimens being 3+ and 4+. A population estimate for brown trout in this section is given in Table 3.

No 0+ trout were caught or observed in this section. Stoneloach *Barbatula barbatula* and Bullhead *Cottus gobio* were also present in this section and numbers of these species and trout caught on each of the three fishings are shown in Table 2.

### Section 2.

No fish were caught or observed on either of the two fishings of this section.

The dimensions of the two sections electric fished on the Finger valley stream are shown in Table 1.

Table 1. The dimensions of the two sections electric fished on the Finger Valley Stream.

|           | Length<br>(m) | Average<br>Width (m) | Total<br>Area (m <sup>2</sup> ) |
|-----------|---------------|----------------------|---------------------------------|
| Section 1 | 42            | 2.4                  | 99                              |
| Section 2 | 50            | 1.7                  | 85                              |

Table 2. Number, length and age of brown trout and number and length of all other species caught on each of the three fishings carried out in section 1 of the Finger valley Stream.

|                | Species     | Number | Length (cm) | Age (yr) |
|----------------|-------------|--------|-------------|----------|
| <b>Shock 1</b> | Brown Trout | 8      | 9.5         | 1+       |
|                |             |        | 9.9         | 1+       |
|                |             |        | 10.0        | 1+       |
|                |             |        | 10.7        | 1+       |
|                |             |        | 10.9        | 1+       |
|                |             |        | 13.7        | 1+       |
|                |             |        | 20.5        | 3+       |
|                |             |        | 27.3        | 4+       |
|                | Stoneloach  | 4      | 10.4        |          |
|                |             |        | 10.6        |          |
|                |             |        | 10.8        |          |
|                |             |        | 11.2        |          |
|                | Bullhead    | 1      | 8.5         |          |
| <b>Shock 2</b> | Brown Trout | 1      | 11.7        | 1+       |
|                | Stoneloach  | 7      | 9.7         |          |
| 9.8            |             |        |             |          |
| 10.3           |             |        |             |          |
| 10.3           |             |        |             |          |
| 10.8           |             |        |             |          |
| 11.3           |             |        |             |          |
| 11.3           |             |        |             |          |
| <b>Shock 3</b> | Brown Trout | 1      | 10.8        | 1+       |
|                | Stoneloach  | 2      | 10.3        |          |
|                |             |        | 10.6        |          |

Table 3. Population estimate for brown trout in section 1 of the Finger valley Stream.

| C  | N  | 2*SE | P    | D     |
|----|----|------|------|-------|
| 10 | 10 | 0.00 | .769 | 0.101 |

Leigh Wood East spring.

No fish were caught or observed during either of the two fishings carried out on this stream.

### **Discussion.**

Although brown trout were found to be present in section 1 of the Finger valley stream, no 0+ trout were caught or observed. The stream bed in this section was a mixture of coarse and fine gravel with some boulders. This substrate also contained a high percentage of fine silt, suggesting that this stream is not of suitable spawning habitat for this species and is therefore unlikely to contribute to the main river population.

The two larger trout and the majority of the 1+ trout were all caught immediately downstream of the waterfall, in a plunge pool with a depth of approximately 60 cm. This means that the fish density estimate is largely restricted to this pool and not necessarily representative of the section as a whole.

The fact that no fish were caught or observed in section 2 of the Finger valley stream suggests that the cascade at the top of section 1 is impassable. Combining this with the fact that this stream is known to run dry during the summer months, it is our opinion that the stream above the cascade is unlikely to support any fish population and is therefore of no importance to the main river population. It is for this reason that electric fishing was terminated at the top of section 2, with no other fishing's being carried out further upstream.

No fish were caught or observed in the Leigh wood East Spring. The stream bed between the confluence with the River Mells and the series of impassable cascades was completely covered in a 5cm layer of fine silt, making this stream completely unsuitable as spawning habitat for salmonids and therefore, this stream is of no importance to local or main river populations.

### **Crayfish.**

Although crayfish were not found in either of the two streams sampled, the presence of one white-clawed crayfish in the Chantry Springs watercourse during the original survey demonstrates the presence of this species in the River Mells catchment.

As the two streams sampled are dry for part of the year, permanent populations of crayfish cannot exist within them. However, augmentation of these streams with the correct quality of water may result in colonisation from any main river populations.

