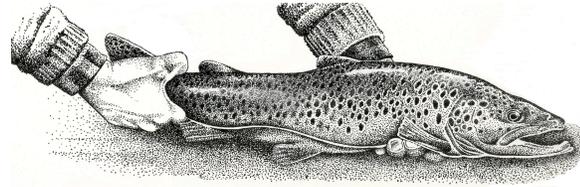


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Report on Advisory Visit to The River Meon, East Meon, Hampshire.

November 13th 2004

Draft Report

1. Nick Giles walked the upper Meon in and around the village of East Meon on November 13th, 2004 in the good company of Mr Christoph Harwood. The River Meon is a small chalk stream which is well known for the quality of its brown trout fishing, although the aim of the survey this time was to see if the river could be restored to a state of enhanced biodiversity, rather than solely focusing on trout.
2. Downstream of the village (Drayton/Riplington) where the fields are used for sheep pasture, the general physical habitat quality of the river is good, with natural sequences of gravel shallows (riffles), pools and glides.
3. More immediately below the village beyond the carpark, where arable cultivation takes place, the river has been dredged and straightened and would benefit from added physical features such as gravel shallows, modest pools and added cover (small boulders) for wild brown trout. The removal of overhanging trees will allow in more light to enable weed to grow within the river.
4. This is also the case where the river retains a natural bed through the allotment area between the concrete of Frogmore and East Meon, below the Frogmore Mill and in some gardens within the village. Timber obtained whilst cutting-back over-hanging trees could be used to create better in-stream habitats (eg physical cover and current-deflectors). This in-stream work, which requires prior Environment Agency consent, must be very carefully designed so as to pose no increased risk of flooding. This means that the work needs to be carefully managed so as not to impede or impound flows and to enlarge, rather than decrease the channel volume.
5. Where the stream has been concreted and walled through the village, as part of a former flood defense scheme, the habitat quality for trout and other wildlife is

abysmally poor. In the event one day of any re-building of this artificial channel, there would be great scope for habitat improvement so as to create a series of gravel shallows and small pools, marginal stands of aquatic vegetation and submerged weed beds. All of this could be done sympathetically whilst retaining the essential flood capacity of a re-built channel. However, work just to deliver just this is unlikely to be economically feasible.

6. Over some of the Meon water, mature trees have lacked routine maintenance for some years, leading to a tunneling (almost complete shading) of the river channel. Cutting these back to ground level, will allow more light onto the river and will lead to increased weed growth and hence to greater biodiversity. (See attached notes).

Over-shading

The lack of light reaching the river and stream bed along much of the stretch walked has a number of important knock-on effects:

- Bank side grasses are shaded-out, producing erosion of banks which are no longer bound by grass roots.
- Silt washed in from the banks is added to by large amounts of dead leaves falling from the trees each autumn – this can lead to silting of the channel.
- Aquatic plants including marginal rushes and reeds, in-stream weed beds and algae coating stone surfaces are all strongly suppressed.
- This lack of underwater plant growth leads directly to little food for aquatic invertebrates and diminished insect and other invertebrate populations.
- Few invertebrates mean that there is little food for wild brown trout and other fish (bullheads, stone loach).

Tree work

What is required to reverse this situation is a strategic tree-pruning plan, implemented as funds permit. First, the tree boughs keeping light out of key areas of river channel must be identified and marked clearly. Then they should be cut back, ideally after the sap has dropped in autumn. By taking out over-shading boughs each year, gradually, the stream will become better lit and productivity will increase. An additional benefit is that top-heavy trees will be much less likely to be bowled over by winter gales, ripping-out sections of bank with their roots in the process.

All of the above tree works can be carried-out without any official permissions, provided that there are no Tree Preservation Orders (TPOs) currently in operation, the Local Council can advise.

Spawning gravel

The bed of much of the Meon either side of the village and within the allotments is very silty and, where natural gravels remain, would greatly benefit from being cleaned thoroughly by the application of a high-pressure water-jetter. Clean gravel provides better habitats for:

- Trout eggs and the eggs of other small stream fishes (bullheads, loach, brook lampreys)
- Insects and other aquatic invertebrates important for trout feeding ecology and the swallows and house martins that spend their summer in the valley.
- Aquatic plants such as water crowfoot (*Ranunculus*).

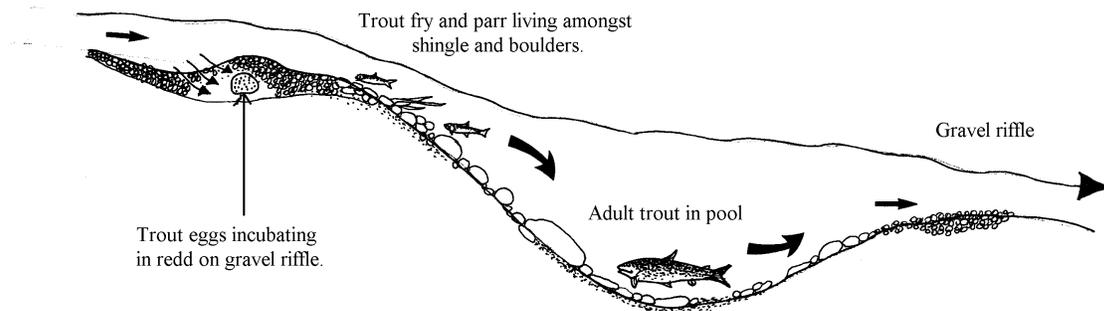
Gravel cleaning should be done in early autumn, before trout start spawning. Environment agency consent may be required (this requirement varies between EA Areas). When in doubt, seek advice.

Background notes © Dr Nick Giles.

Wild trout habitat

Brown trout need good, clean water flows, relatively silt-free gravel for spawning, abundant cover from predators and a nice varied sequence of shallow riffles, weedy glides and deeper pools. As revealed by today's walk, the Meon Water lacks most of these attributes over significant sections. This can be improved through the actions highlighted above.

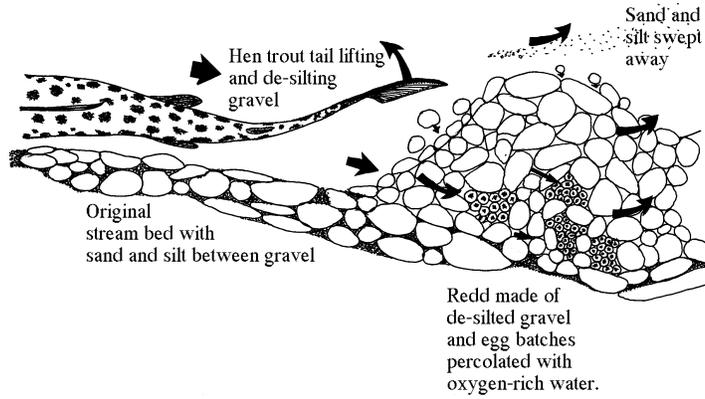
The diagrams below show how a short section of good habitat can provide everything a wild trout needs throughout its life cycle:



Siltation of spawning gravels

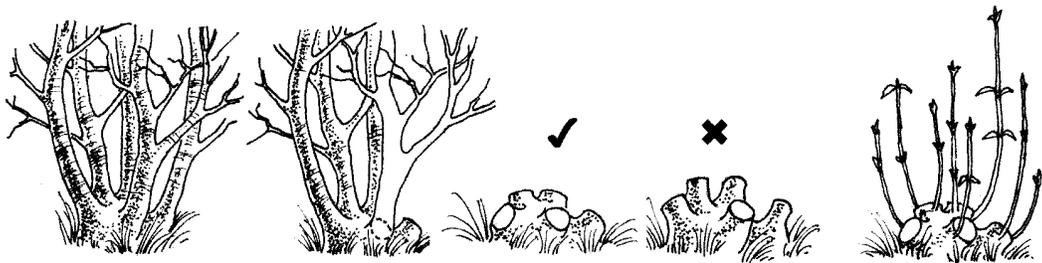
The wild trout stock is certainly being adversely affected by a river bed which is extremely silty and compacted, providing a poor environment for incubating fish eggs. This can be helped by a thorough water-jetting of suitable areas of gravel early each autumn, before the trout spawn in early winter. These cleaned areas will also be of value to bullheads and lampreys which spawn in the spring. Fly life will also be boosted by the opening-up of the formerly clogged river bed which will be re-colonised by a wide range of aquatic invertebrates. Larger flints uncovered during the water-jetting will be used by bullheads for breeding and cover and by trout fry and parr for cover. Sediments disturbed during the jetting process will re-deposit downstream in areas such as inner bends where they will produce habitats for various burrowing invertebrates (eg *Ephemera* mayfly nymphs) and for lamprey larvae.

Trout redd



Over-shading

Good coppicing practice:



Old growth

Correct coppice

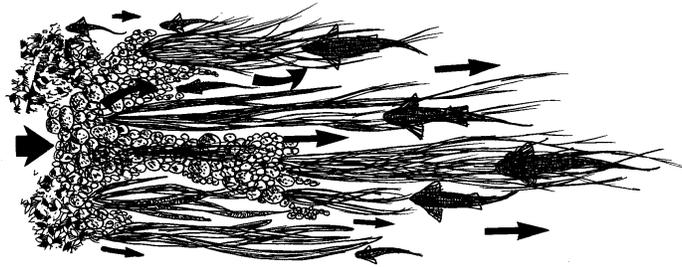
Spurs too long

Useful re-growth

Physical cover

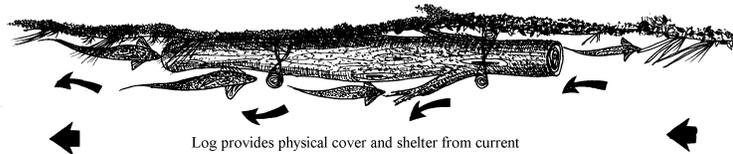
Trout parr (fish of up to a year's age) need relatively shallow water with cover from weed beds, boulders or deadwood (logs) staked securely along the margins. Adult trout continue to seek out habitat where year-round secure cover is available.

Trout
sheltering
within
weed
beds.



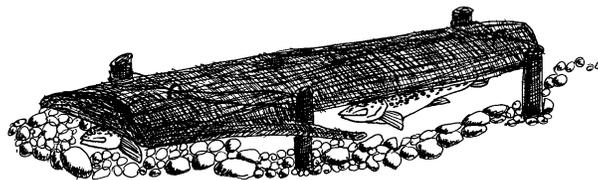
Whilst weed beds offer good summer cover, they die back in winter leaving fish stocks vulnerable in open water to a range of potential predators. These predators include herons, cormorants, pike, mink and otters. Trout streams with abundant cover hold much higher fish stocks than those where most or all of the dead wood cover has been cleared away. To create improved cover, logs or half logs can readily be pinned close to the bank, leaving a gap underneath them for sheltering brown trout.

Trout using dead wood cover feature - staked close to well vegetated bank.



Log provides physical cover and shelter from current

Half log cover board staked to river bed



safe cover is provided for two adult trout

The boards / logs will not rot as long as they remain submerged year-round. Prior Environment Agency consent is required for this type of in-stream work. It is recommended that professional help is sought when designing in-stream habitat improvement projects.

Nick Giles, November 13, 2004.