

Dr Nick Giles & Associates
50 Lake Road
Verwood
Dorset
BH31 6BX



Wild trout habitat specialists
Design & Build restoration projects

Consultants: Fisheries, Conservation, Freshwater & Wetland Ecology.

Tel 01202 824245 Fax 01202 828056

Email gilesassociates@btopenworld.com Web site www.nickgilesassociates.co.uk



Report on Advisory Visit to River North Wey, Bentley, July 2004

Summary

1. Nick Giles walked the Bently Fly Fishing Association water on July 17th in the good company of Mr Bill Stanford & Dr Nigel Ling. The fishery is situated on the chalk spring-fed headwaters of the River North Wey and comprises around three and a half miles of fishing. There are 24 Association members and around 300 brown trout are stocked each year. A similar number of fish may be caught each season and a fair proportion of the catch is of wild brown trout. The Association is keen to conserve and develop its wild trout stock. To this end, it is recommended that as many wild fish as possible are released whilst the fishery recovers from pollution and whilst habitats are improved. The wild stock will only withstand a limited degree of exploitation. It is also recommended that triploid (sterile) brown trout are stocked, rather than the current diploid fish. This will help the naturally-spawning trout stock to breed without crossing with fish of hatchery origin. Stocked trout are best spread out as far as possible over the fishery. Much of the valley runs through intensive grassland, managed for cattle and sheep grazing although some has reverted to organic production. Fortunately, there is virtually no arable cultivation close to the river. Intensive grassland management for cattle grazing appears, however, to be having appreciable effects on the quality of river habitats. Where over-wide channels are now present (because of bank erosion) the current practice of narrowing with staked hazel faggots to re-establish a smaller summer channel should continue. There is scope for a great deal of this work on various stretches of the fishery. Electric-fencing could be used to keep cattle away from sensitive stretches in summer and removed each autumn.

2. The uppermost (Mayhew's) and lowermost (Harrap's) beats have the best sequences of shallow gravel riffles and deeper glides and pools. Water quality appears best at Mayhew's judging from the relative scarcity of blanket weed (filamentous algae) and the luxuriant growths of water crowfoot, starwort and associated species. Siltation of the bed is modest at Mayhew's but marked at Anstey Bridge and further downstream. Much of the sediment input has probably arisen from historic and recent bank poaching by cattle. It is recommended that an annual programme of autumnal gravel-jetting is carried out on the upstream slope of suitable spawning riffles so as to boost trout egg survival. This is likely to be the single most cost-effective habitat enhancement technique available on this river.
3. The dredged river sections at Mareland's (and, perhaps, elsewhere) would be worth improving by the building of new riffles in suitable places. These riffles should be made of 20-30cm clean river gravels, shallowing the water depth and providing an adequate depth of gravel for trout spawning. Clean gravel riffles are important, not only for trout spawning, but also for good water crowfoot growth and for abundant and diverse fly life. It is hoped that some Environment Agency funding may be available to help with these environmental improvements and it is recommended that an approach to the Agency (via John Sutton) is made.
4. Whilst summer weed and marginal plant growth is lush throughout the fishery, providing ample summer cover for trout, it is recommended that year-round dead wood cover (staked logs) are constructed in as many suitable sites as possible throughout the fishery. This year-round cover increases the number of safe trout lies. This is especially important on a fishery where the heron density is obviously so high.
5. Brief inspections of aquatic invertebrate communities indicate marked nutrient-enrichment at Marelands and Harrap's. The excess nutrients entering the system may be coming from organic and inorganic grassland fertilizers and/or from Sewage Treatment Works (STW) effluents. The growth of the alga *Enteromorpha intestinalis* above the Cattle Bridge on Mareland's indicates particularly enriched conditions, especially on a chalk stream and merits investigation by the Environment Agency.
6. Observations during the river walk revealed large numbers of chub (particularly at Harrap's) and a single carp (at Marelands). Whilst these fish are unlikely to have a great impact on the stocked trout, they may depredate trout fry and parr to some extent. This potential impact of chub is, however, probably often over-stated and a coarse fish removal is only recommended if it is carried out by skilled workers using the correct electric-fishing equipment in the correct manner. If this is available, then an interesting survey of the current status of the wild trout stock could be made at the same time as a removal of unwanted coarse fish. A coarse fish removal is only recommended if there is a suitable 'new home' available for the fish. Both the fish-removal and any re-stocking would require prior Environment Agency approval. The trout stock survey should be properly analysed and written-up to provide a baseline study for future comparison.

7. Over some of the fishery (lower Harrap's), mature trees of various species (mostly willow, oak, ash & hazel) have lacked routine maintenance for many years, leading to a tunneling of the river channel. The lack of light reaching the river and stream beds 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 leads to silting of the channels.
 - Aquatic plants including marginal rushes and reeds, in-stream weed beds and algae coating stone surfaces are all suppressed.
 - This 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 poor quality fly fishing (few flies and few trout!).

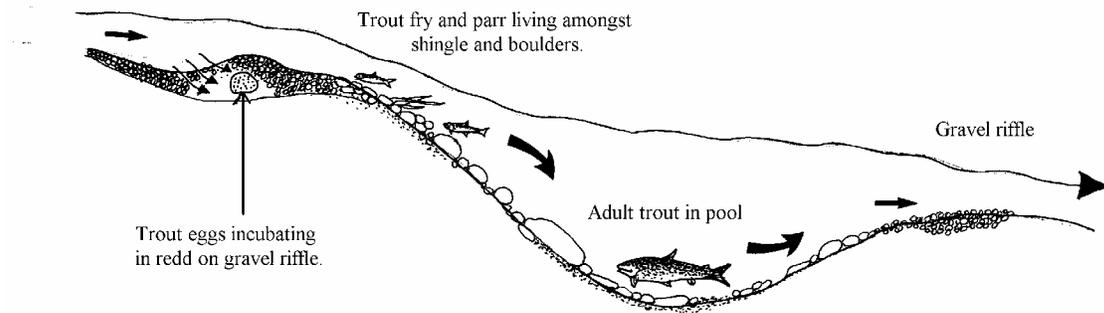
What is required to reverse this situation is a strategic tree-pruning plan, implemented as funds permit. First, the tree boughs keeping light out of key areas of river channel must be identified and marked clearly, then they should be cut, ideally after the sap has dropped in autumn. The timber liberated should be cut into useful lengths and stacked out of the flood plain for use in future habitat improvement works. All of the above 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).

8. The fishery has Himalayan Balsam present. It is strongly recommended that this species is pulled-up before seed heads mature. Himalayan Balsam shades out native river bank vegetation, then dies back each autumn, over-wintering as seed. The bare river and stream banks left after this annual die-back are prone to increased erosion.

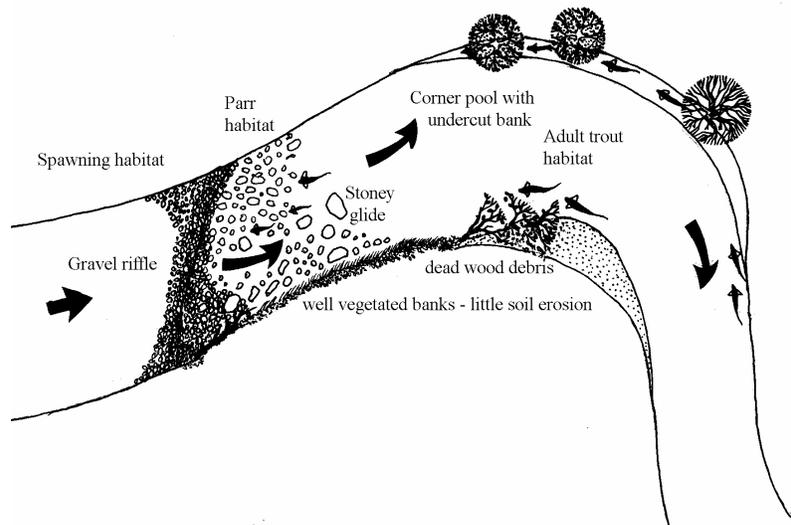
Nick Giles Associates would be happy to help with all or any of the above works.

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

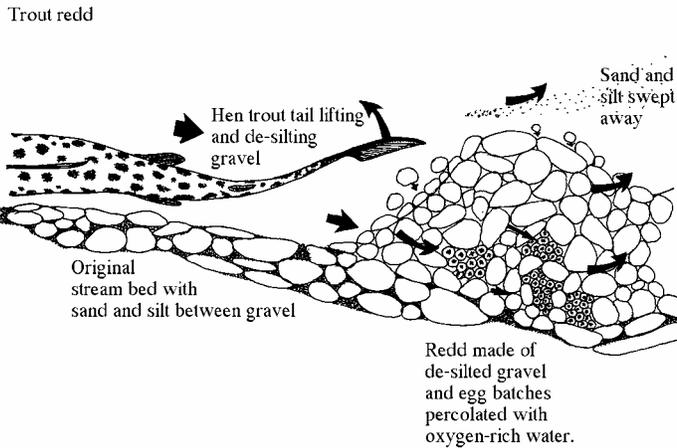


Trout stream riffle-glide-pool habitat sequence



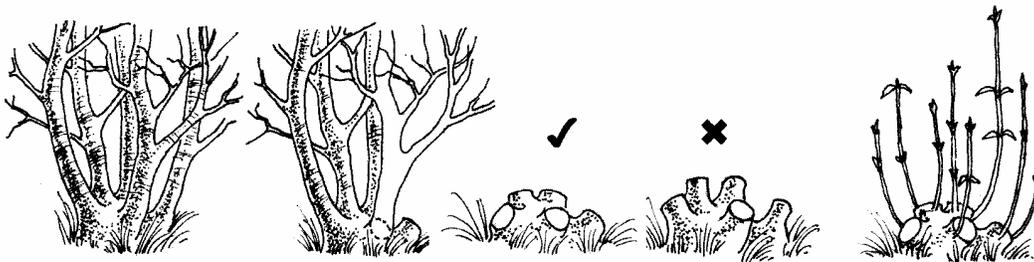
Siltation of spawning gravels

The wild trout stock is certainly being adversely affected by a river bed which is silty and compacted along many stretches, 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.



Over-shading

Good coppicing practice:



Old growth

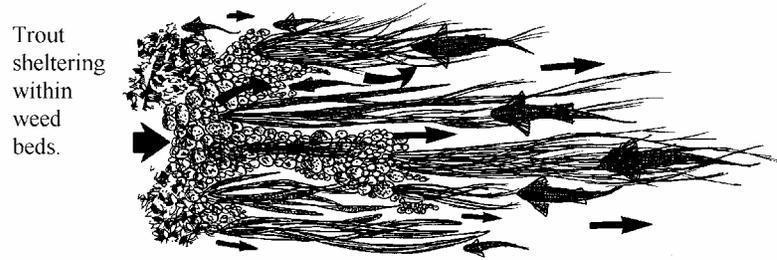
Correct coppice

Spurs too long

Useful re-growth

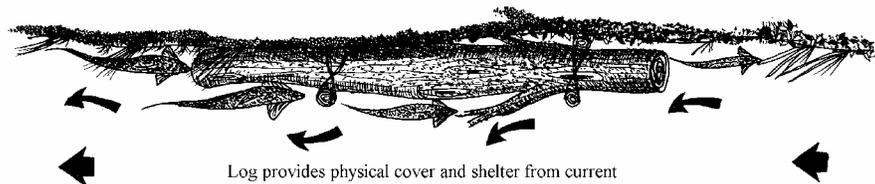
Physical cover

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.



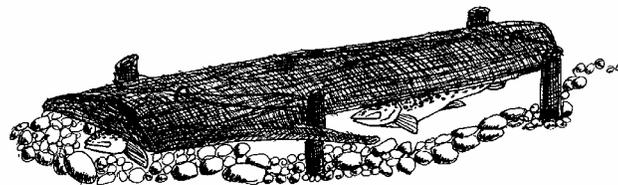
Whilst weed beds offer good summer cover, they die back in winter leaving fish stocks vulnerable in open water to a range of potential predators. These predators include herons, cormorants, pike, mink and otters. Trout streams with abundant cover hold much higher fish stocks than those where most or 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.



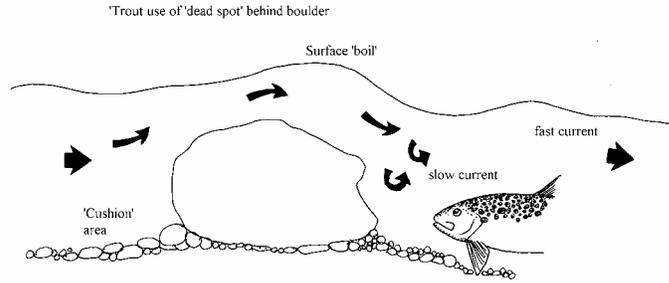
Much of the Bentley FFA water lacks fish cover in the form of deadwood and there is great scope to add cover along many suitable stretches, using timber boards or small logs.

Half log cover board staked to river bed



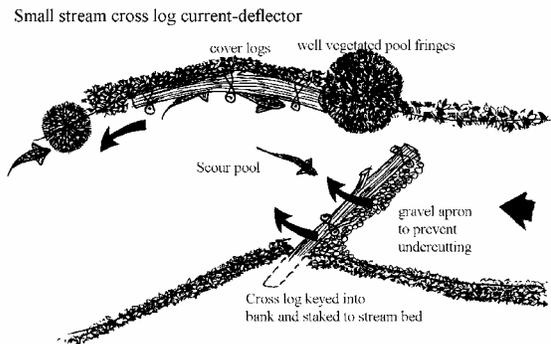
The boards / logs will not rot as long as they remain submerged year-round.

The addition of boulders to provide cover for trout also works well, but is much more labour-intensive and expensive than the use of appropriate timber structures.

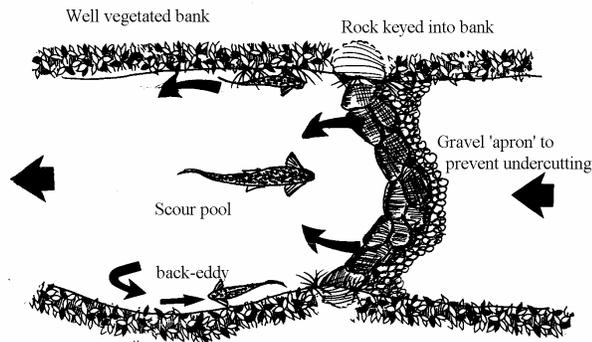


Re-directing flows to scour pools

On Mayhews, there is scope to develop some scour holes along the upper section but, generally, the fishery has a good variation in water depth. A few extra pools on Mayhews plus some extra shallows on Marelands would both be beneficial. Prior Environment Agency permission is required before any in-river channel habitat work is carried out.



Small stream boulder weir



In small streams deep water adult trout habitat can readily be created by building upstream - curved weirs which concentrate flows in the centre of the channel. Cover logs along edges improve holding capacity.