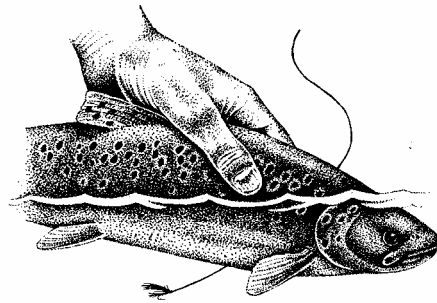


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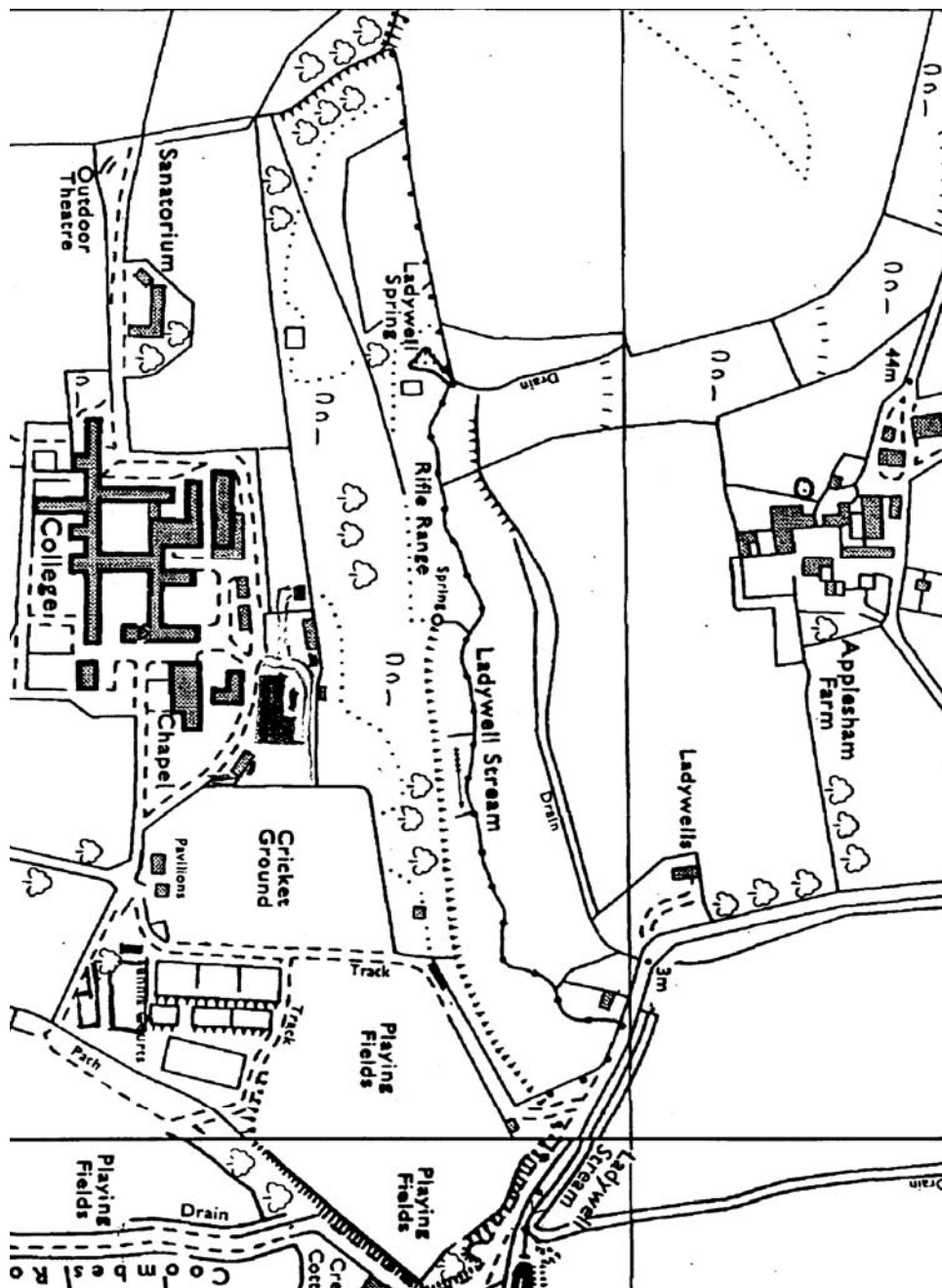
Advisory visit report

The Ladywell Stream

May 6th 2004

Introduction

Nick Giles walked the Ladywell Stream, Lancing College in the good company of Tim Mansfield (Lancing College) and Jim McGregor (Environment Agency) on April 29th, 2004. The Ladywell stream is an interesting, spring-fed, small tributary of the River Arun, running through the grounds of Lancing College. It is thought that the stream originally supported a small breeding stock of sea trout but migratory fish access is now barred by a sluice/flap valve which prevents saline incursion to the stream during high tides. Whilst a preliminary plan was prepared by Environment Agency staff to investigate the feasibility of modifying the sluice valve to renew access for sea trout and eels, it was subsequently decided that the project is uneconomic.



Current fishery management

The Ladywell stream fishery, which extends to around half a mile, is fished by a syndicate of 30 rods, including staff and students and is currently stocked with rainbow trout which are fished on catch-and-release basis. This fishery is very popular with syndicate members, allows an opportunity for students to learn the art of fly-fishing and makes use of what may otherwise be an overgrown, largely unmanaged small stream. A range of valuable habitats is present from a spring-fed pool, a varied but sediment-laden stream channel, reed and rush marginal vegetation and a range of submerged aquatic plants. There is a small resident coarse fish community originating from previous stocking in the distant past. Both rainbow trout and coarse fish are regularly attacked and killed during late autumn, winter and early spring by cormorants which have a regular flight line up the adjacent River Adur. The syndicate manages the water in a number of ways and has, in the past, received help from The Environment Agency with de-silting operations. Silt has built up since the last de-silting operation (carried out three years ago) and is a topic of concern within the angling syndicate. The current view of The Agency is that extensive de-silting is not the preferred future management technique for the stream and that less invasive approaches to channel siltation should be encouraged.

Current management practices on the stream include:

1. Periodic de-silting with help from The Environment Agency.
2. Weed cutting and partial channel clearance to maintain angling conditions.
3. Stocking with rainbow trout.
4. Routine patrolling to scare cormorants away.
5. Provision of artificial physical cover for fish to reduce losses to cormorants.

Taking each of these in turn, the following advice is offered:

Periodic de-silting and weed-cutting.

Three years ago, the spring-fed pool at the head of the stream and much of the stream channel was de-silted by the Environment Agency using a hydraulic excavator and Bradshaw bucket and the sediment was deposited in a strip three metres from the stream. Much of this silt was reported to have washed back into the stream during the exceedingly wet winter that followed. The small amount of remaining spoil has since been grassed over. Currently, silt levels are building-up once more and the possibility of a repeat de-silting exercise by The Agency has been discussed. Because of changing land drainage and flood defence priorities, it is felt unlikely that the Ladywell stream will be of high enough priority to justify significant future use of Agency staff time and machinery. Also, it is considered that the conservation value of the stream would best be served by less intensive silt and weed-removal techniques. This is not to say that there is no possibility of future help from Environment Agency Flood Defence staff, but the scale of operations is likely to be rather less than that mounted three years ago. This poses a problem for the syndicate – how best to manage siltation of the stream. The following approaches are recommended:

- Review the farming practices on the meadows adjacent to the stream to make sure that sheep are not causing soil erosion which enters the stream.

- Regular, small-scale, raking of weed beds and removal of weed (after allowing it to drain on the stream bank for an hour or two) to a compost heap in the woodland. This type of work, if carried out on a little-and-often basis, can make a substantial difference to the fishability of a small stream and helps to reduce the amount of submerged vegetation which dies and rots at the end of the summer. This also reduces silt build-up. There is a possibility that Fishing Syndicate members, plus College Conservation Corps volunteers could accomplish this work by themselves. The use of a chain scythe may be worthwhile but care is needed not to overdo weed-cutting on any one occasion. Aquatic invertebrates dragged out with the weeds could form the basis of a number of interesting student projects, the rest being allowed to crawl back into the water whilst the weed is draining.
- Regular (annual) scooping out of silt over short sections of stream so as to produce an undulating bed, with pools providing summer shelter for trout and other fish. It may be possible either to use College machinery for this purpose, to borrow equipment from a local farmer or to obtain help from The Environment Agency Direct Works Team for this small-scale operation. When de-silting stream channels of this type, it is best to tackle an intermittent series of short (20 metre) sections, leaving the far side of the channel (with its reedy margin) alone and concentrating on the silt lying along the near-side bank.
- In winter, the stream runs bank-full at times and has some erosive force, possibly capable of purging silt from the system. This natural de-silting process can be aided via the use of staked hazel hurdles placed in pairs so as to narrow the channel and increase current velocities. Environment Agency advice and consent would be required and the project would, inevitably, be experimental but it is worth a try. Through the temporary siting of a series of hurdles and taking advantage of periods of high stream flow, silt could progressively be moved downstream towards and into The Arun. Care would be needed so as not to block sluices and it would be best to clear relatively small volumes of silt over any given phase of the project. A small-scale trial of this technique is recommended in order to gauge its effectiveness.

Stocking with rainbow trout.

The Ladywell Stream is currently stocked with modest numbers of rainbow trout which are caught and released during the fishing season. Survival of trout after capture appears to be good. The possibility of stocking brown trout was discussed during the visit. The recently published Environment Agency National Trout and Grayling Strategy (2004) recommends care in the stocking of trout fisheries which are connected to waters where wild trout spawn. This is the case with the Ladywell Stream as escapee brown trout could, conceivably, survive and interbreed with wild River Adur trout. Whilst this is unlikely to represent an appreciable impact on Adur sea trout, it is best avoided. The Agency Strategy recommends the use of triploid brown trout for stocking under these circumstances. Triploiding can now be done reliably, producing sterile all female stock fish which grow and perform well on fisheries. Triploid brown trout are, however, sometimes suspected of being prone to sudden death when stressed under relatively low dissolved oxygen concentrations. This may be because they have larger red blood cells than diploid fish and, consequently, slower diffusion rates of oxygen into the haemoglobin sites. Conditions in the Ladywell Stream in summer may prove too testing for these fish. It may, however, be worth a trial stocking of a few triploid browns in 2004; these would

provide variety and interest for the fishery and, provided they survive the prevailing conditions, would appear to have no disadvantages (other than price).

Scaring cormorants and provision of artificial physical cover.

At present, cormorants are routinely scared away from the Ladywell Stream but still fish the water when it is quiet, probably early in the morning and late in the evening. Being so close to the coast makes the stream vulnerable to these fish-eating birds especially during late autumn and winter. It is recommended that the following precautions are taken to reduce the vulnerability of stocked trout to being attacked by cormorants:

- Walk the stream at irregular times, if necessary, set up a rota amongst keen Syndicate members.
- Consider buying an inflatable cormorant-scaring dummy – these do work to some extent but birds may soon learn that the threat is not followed up with any effective deterrent.
- If it doesn't disturb people or livestock, consider using a pigeon-scaring gas banger, usually used by farmers for crop protection.
- Stock trout of a relatively large size (larger than a pound and a half), within the season so as to maximise their usefulness to the fishery.
- Collect from the woodland bundles of tree branches of around 2 metres in length and stake them securely along and parallel to the outer edges of the reed beds on the far bank of the stream. This sort of physical cover will be used both by the trout and the coarse fish and shouldn't represent too great a threat of tangling-up fishing lines.

Remember that Environment Agency Consents are essential for much of the above recommended work (de-silting, current-deflectors, in-stream physical cover, fish stocking) and must be obtained prior to any work taking place. Nick Giles Associates would be happy to tender for any of the work detailed above.

Water Quality

It was noted during the stream side walk that much of the submerged weed growth in the stream was covered with a thick layer of epiphytic filamentous green algae. This is unusual so early in the year and may well indicate that excessive nutrients are leaching into the system. The source of such nutrients could be from run-off into the stream system or via the spring sources from the surrounding water table. It is worth investigating whether the surrounding fields are top-dressed with inorganic fertilisers. If they are and if this is the source of nutrient-enrichment of the stream, then a reduction in fertiliser application may help to reduce both the algal blanket weed and epiphytic growths and excessive growth of weed beds within the stream. Any reduction in weed growth would, of course, also help to reduce organic siltation rates.

A final thought

If it proves too difficult, in the long-term, to maintain the present trout fishery because of excessive weed growth and siltation, the Ladywell Stream would make a very attractive coarse fishery for the tench and other species already present. Further stocking of coarse fish is not recommended but, with good management, a self-sustaining coarse fish community should maintain itself.