ADVISORY VISIT TO THE DART ANGLING ASSOCIATION FISHERY ON THE ABHAM STREAM, RIVER DART, DEVONSHIRE, UNDERTAKEN BY VAUGHAN LEWIS, WINDRUSH AEC LTD, ON BEHALF OF DART ANGLING ASSOCIATION
JULY 2005

1.0 Introduction

This report forms the output of a site visit undertaken on 26 July 2005 to the Abham Stream, a River Dart tributary near Staverton, Devon on behalf of the Dart Angling Association. Information for the report was gathered during the site visit. Additional information was provided by club members. Throughout the report, normal convention is followed, with banks identified as RB (right bank) and LB (left bank) when facing downstream.

2.0 Habitat assessment

The Abham Stream enters the River Dart below the minor road bridge at Staverton. The stream is accessible at all discharges to fish migrating upstream from the River Dart.

Walking upstream through Clay Copse and Abham Copse towards Abham, the river was moderately sinuous. Bed width was between 1m-3m, with lightly incised banks. There was a well-developed pool riffle regime, with short pools, typically 3m-10m in length, riffles and shallow glides typical of small upland streams. There were significant sections of large boulders and bed rock, interspersed with loose substrate dominated by mixed gravel and cobbles, with extensive lengths suitable for spawning of both brown trout *Salmo trutta* and Atlantic salmon *Salmo salar*

The channel was heavily shaded by riparian trees, primarily hazel *Corylus avellana,* alder *Alnus glutinosa,* and a commercial softwood plantation, with the channel effectively tunnelled in places. As a consequence, there was little growth of bankside vegetation in the heavily shaded sections of channel. The binding effect of the tree roots had helped to form significant undercut sections of bank that provided valuable cover for fish.

There were numbers of small woody debris dams present that had helped to form the stream morphology, scouring out pools and sorting the bed substrate.

Water quality in the stream had historically been intermittently poor, due to run-off form upstream agriculture. However, it is understood that the shutting of several dairy units has improved water quality significantly. Simple stone turning and examination of woody debris revealed numbers of Trichoptera (caddis) and Ephemeroptera (olive) nymphs, and freshwater shrimps *Gammarus* spp. A summer water abstraction for agricultural activities remained in operation towards the middle/top of the stream.

Upstream of Abham roadbridge, the stream flowed through semi-improved meadows. There was a short section of exposed soil on the LB due to excavation, apparently for a residential dwelling. However, the rest of the reach was well fenced against agricultural stock. Once again, the stream was ‘tunnelled’ with the riparian trees (hazel, hawthorn *Crateagus monogyna* and alder) forming almost total shade.

River upstream of Abham showing semi-improved grass field and heavy shading

During the site visit, it was apparent that in common with other Devon rivers, the Abham Stream was subject to heavy input of fine sediment from road run-off. Fine sediment plumes could be seen running off from agricultural fields via gateways onto the road system, and thence, via surface water gullies, into the stream. Despite efforts by farming interests to reduce this by lining field entrances with stone/gravel, the input of sediment from this source into the river was significant.

3.0 Fish stocks

The Abham Stream held significant numbers of brown trout between 10cm-25cm with good numbers visible on the day of the site visit. The club carries out no stocking of the stream, although up to 400 takeable brown trout are stocked into the main Dart. These could potentially migrate into the Abham Stream to spawn.

In addition, the stream is known to be an important spawning area for migratory salmonids, with sea trout *Salmo trutta* in particular known to utilise the site. Club members reported seeing up to 30 sea trout in individual pools in the autumn, with small number of Atlantic salmon *Salmo salar* also recorded in some years.

4.0 Management recommendations

- The heavy shading of the channel has reduced the growth of riparian vegetation. This is detrimental in that it increases the risk of significant bank erosion and reduces valuable fringing cover for juvenile salmonids. In order to address this issue, it would be of benefit if a regime of rotational coppicing/pollarding of the hardwood trees

could be established alongside sections of the watercourse. The aim of this should be to produce 'dappled' shading over the water's surface, allowing the growth of vegetation on the banks, whilst retaining valuable tree root systems. The ecological and landscape value of the mature trees should not be underestimated.

In addition, it will be necessary to fell some of the semi-mature/mature fir trees to further decrease shading of the channel. It is understood that the owner of the land is happy for some felling to be undertaken by the club. A felling licence may be required from the Forestry Commission for coppicing/pollarding of riparian trees.

- The sorting of bed material and in particular spawning gravel could be improved further by strategic positioning of Large Woody Debris (LWD), in the form of tree trunks and limbs. These will from time to time naturally fall into the river. Unless flood defence or migratory fish access requirements dictate, they should not be removed. Rather, they should be stabilised and trimmed to allow angling access whilst retaining the bulk of the woody debris in the river. Several good examples of naturally fallen timber were noted during the visit. These were having a significantly beneficial impact on the river by sorting the substrate, providing variation in bed profile, providing cover for a range of invertebrates and fish, and detaining leaf litter for subsequent consumption by shredding macroinvertebrates.

Large woody debris dam in the Abham Stream

LWD can actively be encouraged into the river in strategic locations (generally on riffles or shallow glide areas) by selective felling of trees. Leaving a 'hinge' at the base of the trees during felling will allow control of the placement of the timber, and

will also act to stabilise the tree by keeping the tree butt attached to the bank. Ideally, the top of the fallen tree would be angled in an upstream direction in order to reduce the risk of bankside erosion.

- Adoption of these two key management prescriptions should improve both salmonid spawning and the carrying capacity of the river. Spawning gravel should become better sorted, with lees fine sediment present and an associated improvement in the hatching success of salmonid eggs. Carrying capacity of the stream should be enhanced by increasing the amount of fringing overhanging vegetation much used by trout fry and by increasing instream habitat complexity. Post-emergent fry in late April and May utilise areas of overhanging cover with slower water velocity. Reduction in shading of the river will increase the amount of fringing cover present. Later, they move into shallow, faster flowing riffle areas. Retention and introduction of LWD increases the complexity of the instream habitat and the number of visually isolated niches for juvenile trout. As a consequence, the overall number of juvenile trout that the stream reach can support should be increased.

- The Environment Agency should be lobbied to continue its efforts to address agricultural run-off at source and by control of the road drainage network. This will involve negotiation with both DEFRA and the highways authorities in the region.

- Note that all works to bed or banks of the river or within 8m of its banks requires the written consent from the Environment Agency under the Land Drainage legislation. The introduction of any fish or eggs into any inland water requires the consent of the EA under the Salmon and Freshwater Fisheries Act, 1975. It is imperative that all relevant consents are obtained by the club.

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