ONE DAY ADVISORY VISIT ON BEHALF OF THE UPPER TEIGN FISHING ASSOCIATION

Report by :
Tamar Consulting
10 Exeter Street
Launceston
Cornwall
PL15 9EQ
Telephone (08707) 740687
www.tamarconsulting.co.uk

Report and visit sponsored by The Wild Trout Trust

Contents

1.0 Introduction

This report follows a one day visit on behalf of the Upper Teign Fishing Association (UTFA) and was sponsored by The Wild Trout Trust. The visit focussed on a section of the river Teign between Chagford Bridge (sx694879) and Drogo Weir (sx723896), a distance of approximately 3.5km. The aim of the visit was to offer impartial advice on methods for improving adult brown trout (*Salmo trutta* L.) habitat which would consequently help to increase wild trout abundance and enhance the fishery.

Information provided in the report relates to; a site visit on the 23rd February 2005, from discussion with Mike Weaver (Chairman of the UTFA) and from electrofishing data provided by the Environment Agency (EA). At the time of the visit, the river was clear and flowing at low winter levels.

1.1 The Fishery

The UTFA controls approximately 19km of salmon, sea trout and brown trout fishing on the upper Teign (single and double bank) which is located within Dartmoor National Park. The section of river surveyed includes a small stretch within the National Trust's Castle Drogo estate. The river below Drogo Weir is stocked annually with between 300-500 brown trout (11 inch) in order to supplement natural stocks and enhance the fishery. The river above Drogo Weir is managed as a wild brown trout fishery (the weir acts as a barrier to upstream resident trout movement) and the association has raised concerns over the apparent decline in stocks of larger (8+ inch) brown trout. The UTFA actively manage the river and are keen to enact any recommendations to improve habitat.

1.2 The River Teign

The two major sources of the river Teign, the North and South Teign, rise on the eastern side of Dartmoor with the north Teign flowing off moorland and the south Teign flowing largely from Fernworthy reservoir. These two sources meet to the west of Chagford after which the river flows east before swinging southwards at Dunsford and finally reaching the sea at Teignmouth on the South Devon coast. The river flows for approximately 42km and takes in a range of landscapes from the granite uplands of Dartmoor to the steeply wooded slopes below Castle Drogo and the lowland plains around Chudleigh.

The river Teign has several important EC Habitat Directive Annex II species present including; Atlantic Salmon (*Salmo salar*), Bullhead (*Cotus gobio*) and Otter (*Lutra lutra*). During the visit, we noted areas of good habitat for bats including several potential roosts (although species present could not be confirmed). Recommendations made in this report take into account the broad habitat requirements of these species although specific habitat surveying is advisable before carrying out works on or near the river.

The two EA electrofishing sites within this reach (Rushford Mill sx708885 and Sandy Park sx717894) record generally consistent numbers of trout fry and parr between 1993 and 2003 (Tables 1 & 2). However a decline in the number of trout parr recorded at both sites during 2003 may give some cause for concern. Subsequent electrofishing surveys should help to show whether this could be attributed to, for example, low water levels during the dry summer of 2003 or indicative of a more worrying trend. The data shows buoyant populations of salmon fry and parr and this would indicate successful egg deposition/survival and good localised spawning and

juvenile habitat (we observed good spawning gravels just above and in the 100m below Chagford Bridge, for example). It may also indicate that factors such as water quality and predation can be excluded when considering potential factors limiting adult brown trout abundance.

Table 1. Trout fry and parr numbers recorded during timed electrofishing surveys. (EA 1993 – 2003)

Site	**Fry**	*'93*	*'96*	*'99*	*'03*	**Parr**	*'93*	*'96*	*'99*	*'03*
Rushford Mill		11	10	40	14		13	15	14	5
Sandy Park		16	2	18	10		14	12	15	8

Table 2. Salmon fry and parr numbers recorded during timed electrofishing surveys. (EA 1993 – 2003)

Site	**Fry**	*'93*	*'96*	*'99*	*'03*	**Parr**	*'93*	*'96*	*'99*	*'03*
Rushford Mill		62	160	134	211		25	20	14	25
Sandy Park		60	122	222	151		22	20	48	27

EA electrofishing data from the four major tributaries flowing into this section of the Teign (1st and 2nd order streams) indicate successful trout spawning is occurring and there are generally very healthy numbers of fry and reasonable to good numbers of parr recorded (Table 3). Whilst juvenile densities are seen to fluctuate between years, the Whiddon Brook shows a general decline in fry and parr numbers and the Padley Stream a decline in parr numbers. Tributary streams such as these play a key role in sustaining adult trout populations and hence any decline in juvenile populations gives cause for concern. Due to time constraints these streams were not surveyed and we would therefore recommend further studies are carried out to assess for any impacts to habitat quality and availability.

Table 3. Trout numbers per 100m² at electrofishing sites on tributaries flowing into this section of the river Teign. (EA 1993 – 2002)

Site	**Fry**	*'93*	*'96*	*'99*	*'02*	**Parr**	*'93*	*'96*	*'99*	*'02*
Whiddon Brook		31.98	80.50	34.82	19.39		38.06	14.33	16.47	9.69
White Water		22.69	91.43	50.43	88.65		42.70	8.83	18.01	21.28
Weeke Brook		71.72	89.86	85.14	N/S		16.11	14.92	14.26	N/S
Padley Stream		33.47	39.10	68.84	N/S		45.23	28.42	13.50	N/S

* N/S – No Survey

2.0 Habitat Availability and Principle Issues

In general, this section of the river Teign appears to be in good condition with a stable channel and banks. The habitat characteristics are largely typical of a Westcountry moorland river with a cobble/boulder substrate and combinations of riffles, run/glides and deeper 'pots'. The reach includes three weirs however which have raised water levels creating sections of substantially deeper water. This is particularly evident above Chagford and Drogo Weirs, where long stretches of deep water provide good

adult salmonid habitat and juvenile winter habitat. These areas are likely to provide prime salmon and sea-trout fishing with good access from both banks. Overall, examples of juvenile and adult salmonid habitat can be found throughout the reach and this was interspersed with good adult brown trout habitat.

In following the brief for our visit, we paid particular attention to areas of adult habitat and a number of factors were identified as potentially limiting adult brown trout abundance. These provide the basis for a range of actions which could be taken forward by the UTFA, EA, Dartmoor National Park Authority (DNPA), Devon County Council, landowners and local interest groups. These actions are broadly categorised as:

- Improving the level and quality of bankside and marginal cover
- Increasing in-stream woody debris
- Managing riparian trees
- Controlling Japanese Knotweed
- Reducing impact from public access

2.1 Upper Section (Chagford Bridge to Rushford Bridge)

The top and bottom reaches of this section contain mixed adult habitat combining deeper runs and glide with rocks and boulders providing reasonable instream diversity. However the lack of bankside vegetation near otherwise good adult habitat may be reducing cover and refuge leading to under-utilisation by larger trout. Chagford Weir, in the middle of this section, has created a 200m long stretch of deep water which may hold larger trout throughout the year (particularly at the upstream end). In general, this section of river lacked features such as coarse woody debris (CWD) which will reduce channel diversity and may again serve to limit holding capacity.

The field below Chagford Bridge (sx693878) and the field above Rushford Bridge (sx703883) on the RHB were showing signs of tight grazing and the largely redundant fences allow stock access (primarily sheep) to the riverbanks. In addition, the RHB field below Chagford Bridge was showing signs of erosion albeit limited to two areas (e.g. Plate 1). Stock access to these riverbanks has hindered the development of bankside vegetation in turn reducing marginal cover, visual isolation and food sources for trout. Parr and adult trout are extremely territorial and the size of territory is directly linked to the amount of cover and availability of food. We would recommend either improving the existing fencing or installing new fencing in order to increase the level and diversity of bankside plants and grasses, provide increased cover and increase important food sources. Bankside plants provide food through terrestrial invertebrates falling directly off the vegetation and secondly, by allowing various invertebrates to complete their life cycle. Additionally, leaves and woody material from bankside plants contribute to the detrital processing systems which supply energy to the rest of the aquatic food web.

Plate 1. New or improved fencing will encourage the growth of bankside plants and grasses, improve bank stability and enhance the riparian corridor.

As these fields are located within the floodplain, stock proof fencing should be installed ensuring there is no increased flood risk. This could be achieved by installing an electric fence however due to running costs and management implications some farmers are unwilling to use this method. Permanent fencing is often the preferred option and there are a number of measures that can be taken to minimise flood risk: use multi-strand wire instead of sheep netting and provide a large buffer, align fencing parallel with flood flow and fit running wires to reduce debris load. Fencing specifications suitable for these areas can be supplied by the Westcountry Rivers Trust (WRT). The landowners should be advised to contact the EA before any new fencing is installed in the floodplain.

An example of where enhanced bankside cover would improve adult habitat is alongside the deep run on the RHB approx 150m below Chagford Bridge (Plate 2). Whilst there is currently sufficient overhead shade cast by the bankside trees there is little lower storey cover offered by overhanging grasses and plants. Once fencing is installed, plants will soon re-colonise the banks and in time the UTFA may even need to selectively management the banks in order maintain access for casting (from the LHB). One technique for managing land behind fences is to encourage light grazing during drier times of year although this should be restricted to the odd day and does rely on close monitoring by the farmer.

Plate 2. Increasing the level of bankside plants and grasses over deeper runs and pools will help to improve cover and refuge for larger trout.

In order to maintain stock access to watering we would recommend either installing off-stream drinking via troughs (fed by mains supply or water drawn from the river)

or provide designated drinking points at the riverbank. Plate 3 shows a drinking point in the RHB field above Rushford Bridge which indicates good farming practice (although there is scope for slight repair). Drinking points should be constructed in order to minimise flood risk, reduce the potential to catch debris and importantly have a hard standing to reduce poaching resulting from the effects of stock movement. Designs suitable for this location can be supplied by WRT. If river water is used supply troughs (and depending on the volume taken), an abstraction licence may be required from the EA

Plate 3. A stock drinking point in the field on the RHB above Rushford Bridge.

Two dense stands of Japanese Knotweed were noted along the LHB at sx696879 and sx702892. Japanese Knotweed was introduced into Britain in the 19th century as an exotic ornamental plant however it is an aggressive weed that is extremely persistent. The dense stand eliminates native flora and fauna and increases the risk of bank erosion as it dies back in the winter (Plate 4). The plant spreads by rhizome but it can regenerate from small sections of stem making it very fast spreading and quick to colonise new areas, especially along watercourses. Japanese Knotweed is one of two injurious plant species included in the Wildlife and Countryside Act 1981, which makes it an offence to grow or cause the spread of this plant.

The stand of Japanese Knotweed at sx702892 (LHB field below Chagford Weir) has been partially treated and whilst it is encouraging to see this plant being controlled there are several ways in which the methods employed could be improved. Firstly, it is advisable *NOT* to dig up the rhizomes as it is highly unlikely that all will be removed and this can result in increased rhizome growth thus exacerbating the problem. Secondly, we observed that whilst efforts had been made to burn the uncovered rhizomes many were only scorched resulting in new growth (Plate 5). We would advise early treatment of both stands and in particular aim to treat the uncovered rhizomes as this could create a new stand on grazing land. We would also recommend the UTFA contact the DNPA and Devon County Council (Knotweed Forum) to discuss a catchment approach to controlling this plant. The most effective way to rid a catchment is through a co-coordinated approach starting at the uppermost reaches and working downstream. Guidelines on controlling Japanese Knotweed can be found in Appendix 2.

Plate 4. An area where Japanese Knotweed rhizomes (and dead stems) have been removed. Note the lack of vegetation and bare soils which are subsequently at risk of erosion during spate conditions.

Plate 5. A pile of partially burnt Japanese Knotweed rhizomes.

The Two Moors Way, a public footpath, extends for the whole of the survey reach (on the LHB) and whilst we observed few direct impacts to the fishery, an area of bank above Chagford Weir has become eroded (Plate 6). This would seem to largely stem from the use of the footpath and nearby rope swing and whilst unlikely to cause any lasting impact to salmonid habitat, increased activity in this area may cause problems for anglers wishing to the fish the Weir pool.

The LHB and RHB above Chagford Weir appear to be regularly cleared with mown grass banks and limited bankside diversity. Although access to the river needs to be maintained it is possible that over zealous management of the banks could be reducing valuable cover (Plate 7). We would recommend therefore that for improving habitat, sections of bank should remain untouched and only selected areas should be routinely cleared (for access, views etc). The growth of overhanging bushes and shrubs will significantly increase bankside cover and encourage trout to move away from the deeper parts of the river and take up station across the whole channel.

If public access and use of the footpath were deemed to be causing conflict between other river users or tourism interests were a priority, the area between Chagford Bridge and Chagford Weir LHB would make good location for an ‘interpretation

point'. This could be used to explain local wildlife and associated habitat requirements, current management of the river and any other features of interest. Promoting a wider understanding and appreciation of the local environment will help to reduce potential areas of conflict.

Plate 6. Localised bank erosion caused by use of the footpath and nearby rope swing.

Plate 7. A section of deep water above Chagford Weir with 'mown' banks and little lower level cover.

2.2 Middle Section (Rushford Bridge to Dogmarsh Bridge)

Overall, this section of river contains areas of good trout habitat and there is little scope for habitat improvement. Several larger pools and deeper glide are found in the stretch from Rushford Bridge to just below Rushford Mill Farm and these provide good habitat for both migratory and resident adult salmonids. The river from the ford (below Rushford Mill Farm) to the beginning of the woodland is characterised by a long stretch of glide with high levels of instream and bankside cover. Although no habitat works were identified there may be scope to trim some of the multi stem trees in order to improve casting access. The lower section, flowing through the woodland

to Dogmarsh Bridge, contained large boulders and 'pots' giving localised cover and reasonable instream diversity and again shows little potential for improvement.

Plate 8. Good trout habitat with high levels of instream and bankside cover below Rushford Mill Farm

The UTFA organise bank clearance days with the aim of improving access and this shows a responsibility to the needs of its members. For example, an area of LHB has been cleared below Rushford Bridge at sx706883 in order to improve access to a pool that would likely hold both resident and migratory trout. It is important however to target works in order to minimise knock on impacts to habitat. The removal of trees over pools and deeper glide will affect the level of shading, cover and therefore refuge provided in the area. Also, shade is very important for regulating water temperature and will help to keep areas cooler in summer thus allowing for higher concentrations of dissolved oxygen as needed by adult salmonids.

Plate 9. A section of cleared riverbank. Aim to retain a dappled shade over deeper runs and pools in order to provide cover and refuge.

In the future it is recommended the UTFA target the removal of bankside trees so that a balanced approach is taken and importantly aim to retain dappled shade over pools and deeper water which is preferred by adult trout. A good option is to try and roll the

programme of bank clearance over a number of years so that only a portion of the bank gets tackled in any one year. Although this is not always practical it will essentially help to steadily improve the riparian strip whilst retaining greater bankside diversity. If access to pools cannot be resolved without clearing long sections of bankside vegetation the UTFA may consider providing access into the river (steps, ladders) and encourage anglers to fish from within the river.

There is evidence of previous coppicing along several sections of the river indicated by the development of multi-stem tree growth. Whilst we observed no significant overshading of the river and banks (and associated erosion problems) there may be scope, in the future, for light trimming or singling in order to improve light levels onto the banks and encourage the growth of bankside plants and grasses. There may also be a need for selective coppicing in order to limit the potential for excessive shading over riffle areas which are suitable for fry production. Increasing light onto shallow riffles will result in an increase in primary production with knock-on benefits to juvenile salmonids. For example, this could include areas such as approx 100m below Chagford Bridge where we observed good salmon spawning and fry habitat.

We would generally recommend assessing multi-stem trees to ensure that the weight of the stems are not destabilising the root ball and excessive baying is not occurring. As mentioned, it may be appropriate to carry out selective singling of multi stems and we would advise initially focussing on areas where new fencing is to be installed (i.e before access is reduced). In the RHB field below Chagford Bridge for example, several smaller multi stem trees could be trimmed back improving bankside growth with no impact on the overhead canopy. In addition, the method of 'hinge-cutting' trees can be used where baying occurs or marginal cover needs enhancing. This method involves partially cutting the tree stems approx 2ft above the ground and laying the stem alongside the bank (in a downstream direction). The horizontal stem should be secured back to bank. The stem will help to protect the bank, gathering sediment and other debris and provide valuable habitat for salmonids and other wildlife. Before carrying out any such works please read the EA Code of Good Practice for Bankside Coppicing in Appendix 1.

Plate 10. Previous coppicing and new growth of multi stem stool in field below Chagford Bridge LHB.

Salmonids of all ages will benefit from the presence of woody debris along the banks and in the river as it provides good cover and refuge. For example, the Trust has seen a strong correlation between adult brown trout abundance and the incidence of coarse

woody debris (CWD). In addition, woody debris can deflect currents which scour out new pools and form riffles in the river essentially creating new habitat. Wood itself is of poor nutritional value although a huge variety of organisms within the river are associated with it. CWD retains leaf litter which acts as an energy reservoir for the river section as well as providing a substrate for unique invertebrate communities.
In general we observed little instream woody debris over the survey reach and this could be contributing to under-utilisation of otherwise suitable habitat by adult trout. It follows that as a general recommendation, we would encourage the UTFA to leave as much CWD in the river as possible. Whilst it is naturally important to retain access to pools and deeper runs, the benefits from increased cover and instream diversity are extensive.

Plate 10. Coarse woody debris offering bank protection and providing increased habitat diversity

2.3 Lower Section (Dogmarsh Bridge to Drogo Weir)
This section consists of a stretch of deep glide running from Dogmarsh Bridge downstream for approx 450m which offers suitable adult habitat with reasonable to good levels of instream cover. There follows a section of shallow riffle/run before the river opens out into Drogo Weir pool, an approx 150m section of deep water offering good adult salmonid habitat and prime fishing potential. Overall, there is little scope for habitat works along this section of water although as a general recommendation, retaining high levels of bankside cover on the LHB (from Dogmarsh Bridge to below the footbridge) would be beneficial to larger salmonids. This has to be balanced with the need to retain access for fishing and views of the river from the footpath running on the LHB.

Several small stands of Japanese Knotweed were found at the inlet of the tributary LHB (sx717894) and just below the footbridge on .LHB. We would recommend treating these growths before further development and in order to reduce potential impact from human or stock activity in this field. Good agricultural practice can be seen as the National Trust has hardened the crossing point on the LHB stream flowing into the main river. This will reduce poaching of the stream and surrounding land thereby lowering sediment inputs into the main river.

Plate 11. A long section of glide below Dogmarsh Bridge

Plate 12. Hardening stream crossing points is good practice and will reduce poaching and sediment inputs into the river.

3.0 Recommendations

Improving Habitat

- As a general recommendation the riparian corridor should be managed in order to provide cover and shade over deeper runs and pools which provide more suitable habitat for adult brown trout. It is important to encourage the growth of low level plants that will grow over the banks and drape into the water providing localised cover and refuge and increasing food sources.

- Where stock access has led to a reduction in bankside grasses and plants, we would recommend appropriate fencing and alternative sources of stock watering. WRT can provide designs for this work. The forthcoming change in agri-environment schemes also presents a good opportunity for farmers to look towards protecting and improving watercourses. Farmers may be able to apply for the Higher Level Scheme (HLS) thereby attracting grants for capital works such as riparian fencing.

- In general, we would advocate leaving as much in-stream coarse woody debris as possible. The benefits to increasing habitat for salmonids, improving bank stability and enhancing the overall diversity of the river is extensive.

- Riparian trees may need managing in order to allow access for fishing; however we would advise that only selective management occurs and only after a good assessment of current adult trout habitat.

- Where new fencing is to be installed consider carrying out works to single multi-stem trees in order to increase light onto the banks. In general, coppicing programmes should be restricted to areas where overshading occurs over shallow riffle sections with hard substrate (with emphasis on increasing productivity) or where the weight of stems is threatening to destabilize the root ball. Ongoing management of the riparian corridor should therefore involve a routine assessment of multi-stem tree growth.

- We observed several areas of good agricultural practice along this stretch of river including features such as undersowing of maize in order to provide winter ground cover and reduce the potential for soil runoff. A general recommendation would be to continue working with farmers throughout this section of river (and key spawning tributaries) in order to promote best farming practices for reducing diffuse agricultural pollution.

Managing Invasive Plants

- Growths of Japanese Knotweed should, in general, be treated as soon as possible according to guidelines set out in Appendix 2. However we would advise the UTFA to contact DNPA and Devon County Council to see if a catchment wide programme for removing Knotweed is planned for the river Teign. The UTFA can play an important role in controlling the spread of this plant along the river.

- The opportunity should be taken to inform landowners about non-native invasive plants such as Japanese Knotweed. Careful management of stock and machinery near this plant will reduce the potential for further spread. Of note, under the Single Farm Payment Scheme Cross Compliance measures farmers will have to.. 'show that they take all reasonable steps to prevent the spread of Japanese Knotweed, Rhododendron, Giant Hogweed and Himalayan Balsam'.

- Members of the UTFA should be vigilant for other invasive plant species such as Himalayan Balsam and if found should apply control measures. Himalayan Balsam is becoming increasingly abundant on Westcountry rivers and early treatment can significantly reduce its downstream migration. WRT can provide notes on Best Practice for controlling Himalayan Balsam.

- During routine bankside clearance days, it would be worthwhile removing the limited growths of Rhododendron that were found over the survey reach. This will reduce the potential for overshading of the river and banks.

Further Studies

Whilst the visit identified a number of actions that will help to improve the instream and bankside habitat of this section of the river Teign there are a number of areas which need further examination.

- Further studies of the main river above Chagford will help to assess habitat availability over the whole reach of river which contributes to the wild brown trout populations.
- Consider carrying out walkover surveys of the major tributaries leading into this section of the river Teign (initially focus on the Whiddon Brook and Padley Stream). This will help to determine the current habitat status of key spawning tributaries whilst providing baseline information to assess changes over time.

Appendix 1. EA Code of Good Practice for Bankside Coppicing

Coppicing of riparian trees during the winter is a traditional method of management. This can benefit the river, the farm and the whole catchment area. One of the aims is to increase the amount of light falling on the banks and bed of the river to promote the growth of bankside grasses and aquatic macrophytes and algae. Coppicing should be planned on a minimum of a five to nine year cycle.

1. Before carrying out any coppicing a plan should be drawn up. For this the presence of protected species such as bats and otters should be determined (see below), and their habitat requirements taken into account.

2. Only coppice where there is evidence of excessive shading or where the weight of leaning limbs could destabilise the root ball.

3. Where rhododendron and laurel are present, these should be removed. However, to control these species effectively, stumps need chemical treatment. Advice must be sought from Environment Agency staff before dealing with these two shrubs.

4. In heavily over-shaded sections, coppicing should be concentrated in fast flowing shallow 'riffle' areas with lighter work around the glides and pools.

5. Try to leave most of the remaining shading on the south bank along glides.

6. Coppice trees only from October to March and, in any case, well before they come into leaf in the spring.

7. Avoid cutting right back to old growth. Aim to cut to knee height, retaining at least 200mm of new growth. This helps promote good re-growth of the coppice stool.

8. Preferentially leave ivy covered trunks.

9. Leave old and dead trees unless dangerous. Very old or "veteran" trees provide valuable habitat for a variety of wildlife and can contain a rich lichen flora. Some bat species are known to roost under loose bark and in tree holes.

10. Do not take mature timber. It does not coppice well. Any trees with good holes, cavities, splits, or loose bark should be retained.

11. Do not use machinery in the river. There are risks of pollution from fuel, oils and silt associated with use of machinery, which could result in prosecution.

12. Do not damage riverbanks or tree roots with machinery as this may lead to additional erosion. Avoid the use of machinery within 3m of the bank edge or tree stems.

13. Do not work in the river between 1 September and 31 March to prevent disturbance to spawning fish, fish eggs and newly hatched fry.

14. Coppiced timber and brash can form valuable habitat for a wide variety of wildlife. Where possible, it should be stacked and secured in such a way as to avoid it washing away and either endangering fences downstream or accumulating on obstructions (bridges etc) and causing a flood risk. If material cannot be securely stacked then it should be removed from the flood plain completely. Should any material be burnt then this should be done no nearer than 50m to any other tree. In no circumstance should burning take place in the river channel. Ash must not be allowed to enter the watercourse.

15. Leave the stumps in the bank as they help to protect the bank from erosion and provide valuable habitat for fish. Tree roots also provide lying up sites for otters and nest sites for riverine birds such as grey wagtail and dippers.

16. Coppicing should be fenced to prevent damage to new growth from browsing stock.

17. Before working in areas with wildlife designations - Natura 2000 sites, Sites of Special Scientific Interest, National and Local Nature Reserves – you must first consult the relevant authorities, or risk breaching wildlife legislation.

PROTECTED SPECIES

Many of the animals associated with river corridors (including bats, otters and dormice) are protected under Schedule 5 of the Wildlife and Countryside Act (1981), as amended by the Countryside and Rights of Way Act (2000) (CROW 2000) and The Conservation (Natural Habitats, &c.) Regulations 1994. This now extends the offence in section 9(4) of the 1981 Act to ‘subject to the provisions of this Part, if any person intentionally or recklessly kills, injures or takes any wild animal included in Schedule 5, he shall be guilty of an offence.

BATS

All work that may affect bats should be discussed in advance with English Nature as a bat licence is required to survey (licensed consultant or carry out work on roost sites. Bank side trees form important habitats for bats. Check trees for signs of bat roosts:

- obvious holes, cavities and splits
- dark staining on the tree below a hole
- staining around a hole caused by the natural oils in bats' fur
- tiny scratch marks around the hole from bats' claws
- droppings below a hole - they look similar to those of rodents but crumble to a powder of insect fragments
- noise (squeaking or chittering) coming from a hole
- check holes by inserting a mirror and watching the hole at dawn or dusk
- Bats will also roost behind loose bark, which should be checked similarly.

Whether bats are found or not, any trees with good holes, cavities, splits, or loose bark should be retained. An assessment should be made of the impact the work will have on feeding habitats and commuting routes before determining the final coppice plan.

OTTERS

Otter holts are found in cavities in large tree root systems, so any work on trees should be preceded by a root inspection. If a holt or lying-up place is identified or suspected a more detailed inspection must be undertaken by someone with relevant experience to ascertain whether otters are present. Coppicing should be carried out so that the coppice cut is taken some height above the stool, to allow for the protection of the cavity. Otter holts are protected by law and a licence may be required if disturbance is likely. All such works should be discussed with English Nature before proceeding.

THIS GUIDANCE SHOULD BE READ IN CONJUNCTION WITH THE EA LEAFLET "COPPICING: BATS & RIVER CORRIDORS – A GUIDE TO SYMPATHETIC MANAGEMENT".

Appendix 2. Guidelines on Controlling Japanese Knotweed

A variety of treatments have been tried with varying degrees of success and the choice of method largely depends on characteristics such as size and development of the infestation and also the location i.e. if close to a watercourse, don't use harmful chemicals. These notes have been developed from the EA 'Code of practice for the management, destruction and disposal of Japanese Knotweed', the Cornwall Knotweed Forum and the National Trust. Several methods are outlined below:

Cutting:

- Cutting can gradually weaken the plant however this method can take many years to fully exhaust the root system or rhizome (probably more than ten years)
- The plant should be neatly cut near its base using a cutter, hook or scythe and at least once a month during the growing season
- The cut stems should be dried and burnt or disposed of at designated landfill sites
- Japanese Knotweed should *NEVER* be flailed or mown – small portions of stem can regrow into a new plant

Pulling:

- This can be an effective method as it helps to remove the crown and some of the rhizome although extreme care should be taken when disposing of this material. This method is particularly effective on younger stands found on more friable soils however it is likely to take many years to exhaust the rhizome of an established plant.

Chemical Control:

- The use of appropriate herbicides is widely considered the most effective means of controlling Japanese Knotweed and will usually take a minimum of 3 years to completely eradicate the plant
- Most herbicides are persistent in the soil for varying amounts of time therefore choose wisely and consult the Environment Agency before treating a site on or near a watercourse
- Glyphosate-based herbicides (e.g. Roundup Pro-Biactive) is approved for use near watercourses and has performed well during trials. Glyphosate is a translocated herbicide which means the active chemical is transported around the plant enabling effective treatment of the rhizome.
- When using a herbicide, always adhere to the advice given on the label

A) Spraying –

- Aim to cover as much of the surface area of the plant as possible so that the maximum amount of herbicide is absorbed
- Aim to spray the plant in early summer and again just before winter dieback.
- Spraying should be performed during still dry conditions, without rain for 6 hours
- Beware of spray drift onto non-target plants or into watercourses
- Spraying on land which is not your own should be carried out by an approved contractor with a National Proficiency Tests Council Certificate of Competence

B) Stem injection –

- This targeted technique is suitable for smaller stands and for those areas of high nature conservation value (which contain sensitive flora and fauna)
- Stems over 8mm in diameter should be cut approximately 200mm above the base of the cane or approximately 40mm above the lowest node
- The cut stems should be dried and burnt or disposed of at designated landfill sites
- Inject each stem with 10ml of diluted Roundup (1:5). The herbicide solution should contain an appropriate approved dye to indicate which stems have been treated
- Stem injecting should be carried out after mid August but before die back and repeated on a yearly basis till eradicated
- As plant growth reduces, so the diameter of the stem may be too small for injection (below 8mm) and therefore spraying may be more appropriate option
- We recommend visiting www.ex.ac.uk/knotweed for a full methodology

Disposal of Japanese Knotweed

- Take extreme care when disposing of Japanese Knotweed stems, crown or rhizome - even small pieces of rhizome (0.7g or the size of your little finger nail) can grow into a new plant
- Once cut, Japanese Knotweed stems should either be dried and burnt or disposed of at designated landfill sites
- To encourage drying, place the stems on plastic or corrugated sheeting (this will make sure there is no contact with the ground). Ensure there is no risk of dispersal into the surrounding area or watercourses (by wind, animals)
- Once dried, the stems can be burnt taking into account any local by-laws and the potential for nuisance or pollution that may occur as a result of the activity.
- The local EA environment protection team should be informed before carrying out any burning
- If taken off site, stems should only be disposed of at designated landfill sites. It is also important to ensure no material is lost on route.

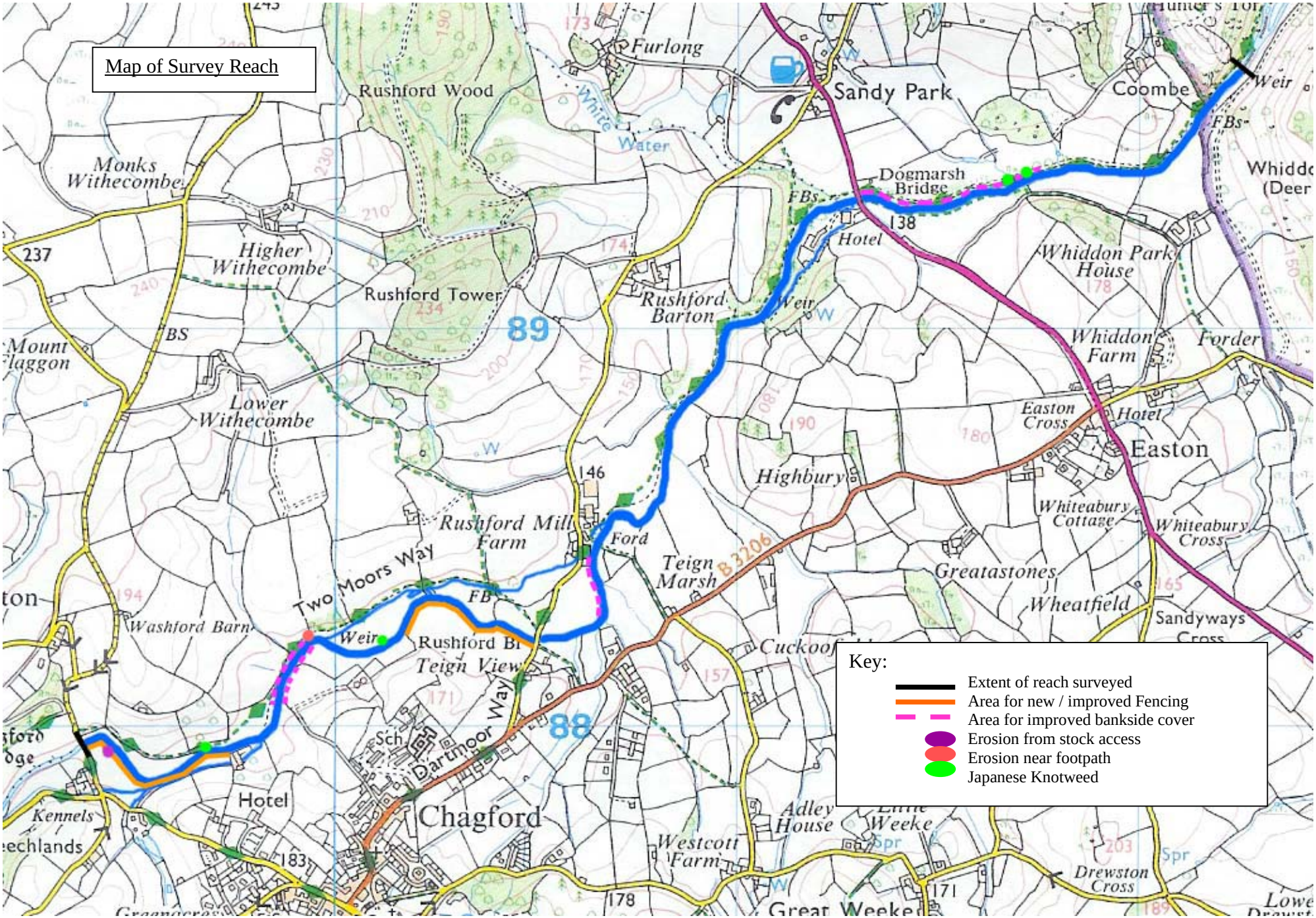
Further Reading –

"Guidance for the control of invasive plants near watercourses" Environment Agency (Tel: 0845 9333111)

"Japanese Knotweed. Guidance for Householders and Landowners" Cornwall County Council/Environment Agency (Tel: 0845 9333111)

Useful websites –

www.ex.ac.uk/knotweed
www.environment-agency.gov.uk
www.devon.gov.uk
www.cornwall.gov.uk


Map of Survey Reach
Furlong
Rushford Wood
White Water
Sandy Park
Coombe
Weir
FBs
Monks Withecombe
Dogmarsh Bridge
Hotel
138
Whiddon Park House
Higher Withecombe
Rushford Tower
Rushford Barton
Weir
89
BS
Whiddon Farm
Forder
Lower Withecombe
Easton Cross
Hotel
Easton
146
Highbury
Rushford Mill Farm
Ford
Whiteabury Cottage
Whiteabury Cross
Teign Marsh
B 3206
Greatastones
Two Moors Way
FB
Wheatfield
Sandyways Cross
Washford Barn
Weir
Rushford Br
Teign View
Cuckoo
Sch
Dartmoor Way
88
Hotel
Chagford
Kennels
Adley House
Little Weeke
Westcott Farm
Drewston Cross
183
178
171
Great Weeke
Key:
Extent of reach surveyed
Area for new / improved Fencing
Area for improved bankside cover
Erosion from stock access
Erosion near footpath
Japanese Knotweed