

The River Cam Catchment – issues and challenges

(A first draft document produced by Rob Mungovan to try and get knowledge written down into one document. Note this is incomplete due to time limitations and limited knowledge on the river through Cambridge area)

Inc general description of the Cam catchment (use former EA CMP docs)

Upper Cam (Saffron Walden to Byron's Pool)

In brief description/issues list (taken from table summarising brainstorm exercise)

Historic value – considered to be stable, Saffron Walden provides an interesting destination for visitors, the river contains a number of water mills with Hinxton being open to the public at certain times.

Development pressures – considered to be under threat. Trumpington Meadows, expansion of Saffron Walden (Uttlesford district), Hanley Grange development (A505/A11 area)

Landscape – considered to be stable, some areas are attractive but could be further improved.

River flows – considered to be stable. Low flows in the very upper parts of the catchment are likely to be of serious concern especially where dilution of effluent is an issue.

Pollution – Considered to be stable but with serious risks posed if problems arise through poor processes or failures e.g. former Bayer Cropscience Site at Hauxton, Sawston tannery, Saffron Walden STW.

Wildlife – Considered to be stable. Scope exists to improve reaches of the river. Species of Potamogeton pond weed are reported to have been lost from the Cam in recent decades. No water voles.

Recreation and tourism – Considered to be stable. Little access to explore the river

Economic – Considered to be stable. 2 trout fisheries and 2 coarse fisheries are present. Flood attenuation

Quality of life – Considered to be stable. River passes through some villages and links people to the river.

River restoration potential – considered to be stable but not yet fully studied (behind work on Rhee and Granta)

River Cam or Granta (upstream of Little Henham to Newport, GB105033037480)

The river is classified as having good ecological status (this must mean that some fisheries and invert info is available, can EA supply some so a description can be included).

River is not considered to be heavily modified.

Is low flow in the upper catchment an issue?

Action: Consider if there scope for retaining large amounts of large woody debris so to aid natural processes and slow the passage of water downstream, plus provide a greater degree of in-channel habitat.

Is the channel over-shaded?

What is the extent of EA maintenance on this watercourse?

Requires picture to illustrate a typical reach

Debden Water (Debden to Newport GB105033037490)

The river is classified as having moderate ecological status (EA to supply data to aid description).

River is considered to be heavily modified. Is there scope for the regrading of the channel form to aid natural processes?

Action: Consider if there scope for retaining large amounts of large woody debris so to aid natural processes and slow the passage of water downstream, plus provide a greater degree of in-channel habitat.

Requires picture to illustrate a typical reach

Wicken Water (Wicken Bonhunt to Newport, GB105033037540)

The river is classified as having good ecological status (EA to provided data to aid description).

River is not considered to be heavily modified.

What is the extent of EA maintenance?

Is there scope for retaining large amounts of large woody debris so to aid natural processes and slow the passage of water downstream.

Requires picture to illustrate a typical reach

River Cam, Newport to Gt Chesterford (GB105033037520)

The river is classified as having poor ecological status (EA to provide data to aid description).

This reach of river takes in the Audley Fly Fishing club who fish for brown trout. The river also contains coarse fish including chub, minnow and dace. Brown trout require good quality water with a good diversity of habitat and clean gravel to spawn upon. The club supplement the natural head of brown trout with stocking. There is potential to improve the natural stock of brown trout through measures such as gravel cleaning and the creation of new spawning riffles. Such measures would also benefit coarse fish and invertebrates.

Some reaches of the river are over-deep as a result of historic dredging.

There are sections of the river that are impounded as a result of weirs retaining ornamental lakes.

Other reaches contain potentially impassable mill structures.

Action – assess ease of fish passage

There is a reach of river that is very extensively tree lined (mainly with alders) which appears not to have been dredged (possibly since WWII as it contains pill boxes and uniform aged trees) and exhibits a very interesting geomorphology and holds wild brown trout. This reach could provide a template for the restoration of semi-natural conditions in the very upper Cam

Action – geomorphological assessment of the entire reach to identify channel form issues that underlie the river's governing processes (gradient, water depth, channel width, bank stability, sources of coarse sediment input, vegetation).

Is the STW near Newport truly satisfactory? High phosphates levels are recorded and are believed to come from the Saffron Walden STW (on the Debden Water). However, consideration should also be given to the extensive duck rearing on-line downstream of Audley End House and to whether it may be detrimentally effecting the river.

There may be a remnant water meadow system associated with fields downstream of Audley End House. The feasibility of reconnecting the floodplain with this system was being investigated by the EA's FRB team several years back but the outcome was not known (R Mungovan pers com with J Brownbridge of Audley Fly Fishing Club). It is suspected that the bed level has been significantly

reduced in order to drain surrounding meadows and reconnection would significantly wet the floodplain which may now be undesirable due to land uses change and nearby residential properties. The non-native invasive plants of Himalayan balsam and giant hogweed are present.

Action: survey the extent of non-native plants and consider suitable action to achieve eradication.



Cam above Audley End House (TL 559363)



Cam downstream of Littlebury (TL515409)

Wendon Brook (Chrishall to Wendens Ambo, GB10503307560)

The river is classified as having moderate ecological status (EA to provide data to aid description). River suffers from drying out in its headwaters (a pumping station is present alongside river). Springs are said to emerge above Wendens which generally keeps the lowest reach wet. Above this the river should be considered as a winterbourne.

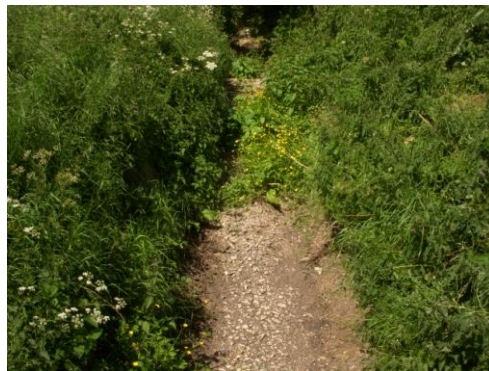
The river is described as a heavily modified watercourse yet in its upper reaches the channel exhibits many natural features with eroding cliffs and gravel bars which become colonised with grasses when the river channel dries (channel was dry in May 2013).

Action: Consider if there scope for retaining large amounts of large woody debris so to aid natural processes and slow the passage of water downstream, plus provide a greater degree of in-channel habitat.

The river connects to the Cam and may represent an important spawning tributary for brown trout due to its abundant gravel shoals.



Wendon Brook above Clanverend Farm TL492363)



Wendon Brook above Clanverend Farm (TL 487366)

Slade (Saffron Walden to Cam, GB 105033037580)

The river is classified as having moderate ecological status (EA to provide data to aid description). The channel form is described as being heavily modified and is clearly an important drainage channel for Saffron Walden as it passes through the town.

Action: Consider what scope exists to create a more natural channel form and if created would it directly improve the ecological status.

Action: Consider if there scope for retaining large amounts of large woody debris so to aid natural processes and slow the passage of water downstream, plus provide a greater degree of in-channel habitat.

What is the flood risk posed by this watercourse to Saffron Walden, can the floodplain of the golf course be better utilised?

What level of maintenance is applied to the watercourse, is there scope to relax it to allow natural processes to prevail in the lower reaches?

There is a STW at the lower end of this watercourse where phosphate removal is listed as an issue, is its discharge satisfactory? Does poor water quality restrict the potential for fish, especially brown trout, to colonise this headwater stream? Is it leading to deterioration of the Cam (that is immediately below it)?

Diffuse urban pollution from Saffron Walden also requires measures to address it.

Action – identify main sources of water quality deterioration. Are there prevalent storm drains that discharge to the river?

Requires picture to illustrate a typical reach

Fulfen Slade (Saffron Walden area, GB 105033037550)

The ecological status is classified as poor (EA to provide data to aid description).

The watercourse is classed as heavily modified. Much of it appears to run in an incised channel.

Action: Consider what scope exists to create a more natural channel form and if created would it directly improve the ecological status.

Action: Consider if there scope for retaining large amounts of large woody debris so to aid natural processes and slow the passage of water downstream, plus provide a greater degree of in-channel habitat.

What level of maintenance is applied to the watercourse, is there scope to relax it to allow natural processes to prevail in the lower reaches?

Phosphate removal is required from the STW (at Carver Barracks?)

Little is known about this watercourse.

Requires picture to illustrate a typical reach

Un-named headwater stream (flows to Ickleton, GB 015033037570)

The river is classified as having moderate ecological status (EA to provide data to aid description).

River is classified as heavily modified. The upper parts run through arable fields and are not what most would consider to be a watercourse. The reach above Ickleton should most probably be considered as a winterbourne.

Little information is known of this watercourse.



Stream at Ickleton (TL493442)

River Cam (Gt Chesterford to Shelfords, GB 105033037590)

The river is reported to have a poor ecological status (EA to provide data to aid description). However, some reaches appear to exhibit a very varied and abundant flora and fauna (R Mungovan observation on the Cam in the Pampisford to Whittlesford area has seen very extensive populations of minnow, wild brown trout, mayfly water crowfoot beds etc). The problem is therefore likely to be more specific to localised reaches within this waterbody ID unit.

This reach of river takes in the Cambridge Trout Club who fish for brown trout. Brown trout require good quality water with a good diversity of habitat and clean gravel to spawn upon. The club supplement the natural head of brown trout with stocking. A number of in-channel habitat enhancements have been undertaken in recent years (seek more info from EA Fisheries team). There is potential to improve the natural stock of brown trout through measures such as gravel cleaning and the creation of new spawning riffles. These measures would also benefit coarse fish and invertebrates. Some reaches of the river are over-deep as a result of historic dredging.

What is the extent of EA maintenance?

Action - An assessment of the benefits of the in-channel habitat improvements should be undertaken to decide whether the repetition of the approaches is applicable throughout the reach on a wider basis.

Action – geomorphological assessment of the reach to identify channel form issues that underlie the river's governing processes (gradient, water depth, channel width, bank stability, sources of coarse sediment input, vegetation).

Action – review EA fish survey data to establish where good populations exist and consider against areas still considered to be poor.

There are sections of the river that are impounded as a result of mill structures. Many of these may be impassable to fish.

Action – assess ease of fish passage

The Cambridge Issak Walton Club fishes the river in the Dernford to Shelford reach as a coarse fishery. Diffuse agricultural pollution is listed as an issue affecting the river

Action – seek information from Natural England on the uptake of buffer strip options along the river Cam. Seek to identify farmers who may not be buffering the Cam with vegetated strips.



Cam at Hinxton (TL493444)

Granta

River Granta (Castle Camps to Stapleford, GB 105033037810)

In brief description/issues list (taken from table summarising brainstorm exercise)

Historic value – considered to be stable. Defunct water meadows system at Sluice Wood. Bartlow Hills, could a Granta Trail be evolved?

Development pressures – considered to be stable. Significant developments at Babraham Hall and Granta Park but they have enhanced and respect river environment.

Landscape – considered to be stable. SNice open rolling landscape. Scope for tree planting.

River flows – considered to be at threat. Suffers from abstraction. Stapleford and Linton suffer from flood risk.

Pollution – Considered to be stable. Road run-off enters the rivers which can lead to significant discolouration (as seen at Babraham). Concern for the threat posed to river by STW and meat processing plant nr Linton.

Wildlife – Considered to be stable. Good in places with diversity of invertebrates, water voles, brown trout and minnow. Is the coarsde fish population below what would be expected?

Recreation and tourism – Considered to be stable. 1 trout fishery is present on the river. Potential for a Granta Trail?

Economic – Considered to be ok. Main risk is posed by floods.

Quality of life – Considered to be ok but does not contribute much to many people's lives. Potential for improvement.

Legal considerations – none known to be an issue.

River Restoration potential – considered to be an issue to address. The River Restoration Centre has undertaken "Options Assessment for River Enhancement" , 2011, for the EA. This document should be used as a driver for restoration of the river. High potential.

The river is classified as having a poor ecological status (EA to provide data to aid description).

The river above Bartlow is prone to drying out. This may be due to abstraction or the river in this area may exhibit winterbourne characteristics. There is a "lake" associated with Bartlow Hall (TL5871745069) but it has not held water in recent years and it is not considered feasible to do so due

to the porous nature of the ground conditions. It is not known whether the lake was ever particularly successful.

The Granta has many weirs (such as through Linton) that appear to have been constructed for amenity purposes. Mills are present at Hildersham and Linton which also impound water. There is an EA gauging station above Linton which may represent an barrier to fish (especially in low flows). These structures may prevent fish passage. A very significant weir exists at Babraham Hall in order to hold back a head of water for the setting of the hall. There are also water voles present at this location.

Action – assess ease of fish passage.

Linton Parish Council have expressed a desire to be able to better manage the river through their village. However, the river is considered to be in reasonable shape. A series of weir exist which impound the river. These retain a head of water through the village for amenity purposes and may actually support the river through low flow periods. The removal of these weirs is not yet considered a priority by the EA. Linton PC have undertaken bankside enhancement through at one part within the village through the use of pre-planted coir rolls. However, the large numbers of ducks have led to the degradation of the features within several years.

The river contains a wild brown trout population with a fishery at Hildersham. Some reaches appear to exhibit a very varied and abundant flora and fauna (R Mungovan observation on the Granta in the Abingtons to Hildersham area has seen populations of minnow, wild brown trout, mayfly water crowfoot beds etc). The problem is therefore likely to be more specific to localised reaches within this waterbody ID unit.

The river from Abington to Babraham once had one of the only floated water meadow systems in Cambridgeshire. The sluice at Sluice Wood is the main relict of this system with some channels and ditches occasionally present. Dredging of the river has resulted in a lowering of the water table and subsequent development at research parks would make reinstatement of a higher flood plain impracticable. The river's course within its natural valley has been altered in places with straightening of the channel apparent in the lower reach from when the railway was constructed.

The River Restoration Centre has undertaken "Options Assessment for River Enhancement" , 2011, for the EA. This document should be used as a driver for restoration of the river. However, its presence should not preclude projects that come forward as "quick wins".

A number of habitat improvement projects have been taken forward at the Babraham Research Campus. Gravel placement has been undertaken as part of a ford creation, bank re-profiling has locally increased channel capacity, flow deflectors combined with riffle creation have been installed, as have pre-planted coir rolls combined with tree thinning. EA fisheries data pre-commencement work exists.

Action – repeat fisheries survey of the Babraham reach to assess effects of restoration works.

Action - An assessment of the benefits of the in-channel habitat improvements should be undertaken to decide whether the repetition of the approaches is applicable throughout the reach on a wider basis.

Phosphate removal from the STW is listed as an issue.

Diffuse pollution agricultural pollution is listed as an issue.

Stapleford parish council own land adjacent to the river known as Clerk' Piece (TL4710951460) which also contains an EA gauging station. This reach of river contains occasional brown trout. Downstream of this areas the river is severely degraded due to cattle poaching and straightening of it course. It is also possible that the reach is impounded due to Kings Mill at Gt Shelford.

The ACE Foundation control own land near to the river at Stapleford (TL4770951538) they have aspirations to create a wetland habitat utilising the ditch system that links to the river.



River Granta Linton (TL558470), June 2011



River Granta, Babraham (TL507507), June 2012

River Rhee

River Rhee (Ashwell Springs to Barrington, GB105033038100)

The river is classified as having moderate ecological status (EA to provided data to aid description). The river is classed as a heavily modified watercourse. A geomorphological walkover assessment has been conducted by the EA (pers com E Selway 2013). This assessment should be used as a basis for refining the suitability of in-channel works such as riffle placement or bed raising. Many reaches have been significantly deepened and it is suspected that historic dredging has exposed the chalk marl bed resulting in a very limited supply of coarse substrate and a great entrainment of fines as clay particles are mobilised. It is R Mungovan's view that the Rhee has generally become more turbid since the early 1990's.

A number of mills, bridge structures and gauging weirs are present on the river and may present barriers to the movement of fish species.

Action – assess ease of fish passage.

A significant habitat enhancement project was implemented on the river in the Wendy area in 2000. This incorporated the use of bank re-grading and the establishment of marginal vegetation through the use of pre-planted coir rolls. Post-project review of the site is not known to have taken place.

Action – review the success of the habitat enhancement measures, and consider their suitability for replication elsewhere along the river.

Diffuse agricultural pollution is listed as an issue affecting the river

Action – seek information from Natural England on the uptake of buffer strip options along the river Cam. Seek to identify farmers who may not be buffering the Cam with vegetated strips.

Phosphate removal from the STW is listed as an issue.

The Wildlife Trust completed a report entitled, "River Rhee, survey for water voles, invasive plants and habitat restoration opportunities" 2012. This document should be used as a driver for restoration of the river. However, its presence should not preclude projects that come forward as "quick wins".



Rhee near Barrington (TL400495), Jan 2012



Rhee at Shepreth Riverside Walk (TL384489), March 2012

Mill River (Abington Pigotts to Wendy, GB 105033038020)

The river is classified as having good ecological status (EA to provide data to aid description).

The river is not classed as a heavily modified watercourse yet its name and straightness would imply that it has been altered (if not entirely created) at some point in its past.

The river may provide habitat for water voles as they have been recorded from Abington Pigotts in the past.

Little is known about the river and further investigation is required.

Requires picture to illustrate a typical reach

Whaddon Brook (Kneesworth House to Whaddon, GB105033038020)

The river is classified as having moderate ecological value (EA to provide data to aid description).

River is classed as being heavily modified. This watercourse is classed as an Award Watercourse and its maintenance falls to South Cambridgeshire District Council. The reaches through the village has to be kept relatively free flowing but there may be capacity to reform the channel in the lower reaches to address previous negative channel modifications.

Action – SCDC to undertake channel walking to scope the potential for in-channel habitat enhancement measures

Royston STW discharges into the brook. The water quality has been classed as “bad” in the past but improvements to the treatment process has raised this to “poor”. Phosphate removal is required to achieve better water quality.

Action – seek further water quality improvements at Royston STW

Water voles are known to be present on this watercourse.

Fish populations are believed to be poor with few species ever seen. However, proper investigation should be undertaken to assess whether this is perception or fact. Channel walking should also have regard to the likely occurrence of barriers to upstream fish passage.

Action – investigate fish population through electric fishing survey



Whaddon brook downstream of village (TL359464), Sept 2007

River Mel (Melbourn Bury to New Malton Golf course, GB105033038060)

The river is classified as being of moderate ecological status (EA to provide data to aid description). River is considered to have been heavily modified. This would have been as a result of the river having been used to drive at least three water mills along its course. These may provide barriers to fish migration.

Action: assess ease of fish passage.

Melbourn STW discharges into the brook. The water quality has improved upon what is once was but the River Mel Restoration Group is still concerned at the high sediment loading that appears to discharge from the works and the occurrence of storm overflows which leave sanitary products visible in the river (R Mungovan has seen both of these occurrences). Phosphate removal is required to achieve better water quality.

Action: Investigate consent compliance regarding storm overflows.

The River Mel Restoration Group have undertaken much local campaigning and habitat restoration works. The river is now a valued habitat within the communities of Meldreth and Melbourn with regular activities undertaken upon it. Brown trout have been observed spawning in 2013 and fisheries surveys have caught a limited number of fish.

The river is at risk of drying out during extended low rainfall periods (not just drought). Abstraction from the Melbourn pumping station has been shown to have a direct effect upon the river (Mott MacDonald report). The EA is able to supplement flows with a pumped river discharge but the effectiveness of this in extreme drought periods has come into question due to the discharged water soaking into the chalk strata. A better outcome would be achieved by extending the discharge to a point below Sheen Mill where the geology changes and the river is constantly wet

Action – EA to re-examine the location of the supplementary flow discharge to the River Mel.

Two surface water outfalls deliver road runoff direct to the river in the vicinity of Sheen Mill. This discharge causes discoloration of the river and would be delivering contaminants direct to the watercourse.

Action – investigate a means of buffering the discharge from the road drains so as to address urban runoff.



River Mel below Melbourn village (TL381451), May 2010



River Mel, Meldreth (TL377459), June 2010

River Shep (Fowlmere Nature Reserve to Barrington, GB105033038080)

The river is classified as having a good ecological status. The lower reaches of the river connect to the Rhee and are utilised as fish spawning areas. The middle to upper reaches of the river are dominated by brown trout. The river has a good diversity of aquatic invertebrates with many species of mayfly adding particular interest.

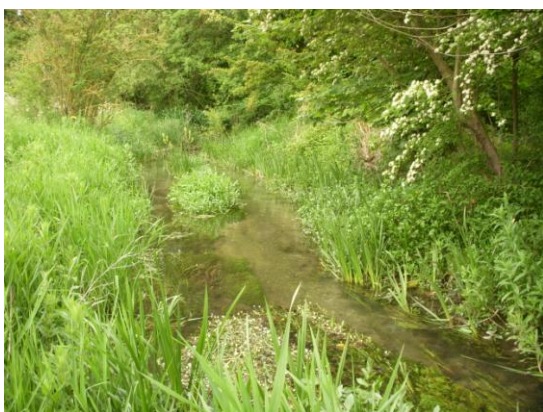
The river is an Award Watercourse and SCDC undertake maintenance in partnership with the Friends of the River Shep (lead by R Mungovan). The group has undertaken a wide range of habitat restoration measures which have shown benefits to the river's ecology. Such measures have included riffle creation, bed raising, installation of flow deflectors, marginal planting, bank stabilisation, gravel cleaning, selective weed cutting and careful channel desilting.

Action – promote the effectiveness of the habitat restoration techniques as an example of local best practice.

The Friends of the River Shep, Wildlife Trust and SCDC have produced a river walk leaflet to encourage discovery of the river and an appreciation of its environment. The leaflet is made available in local establishments and the village website.

River is considered to have been heavily modified. This would have been as a result of the river having been used to drive at least three water mills along its course. These may provide barriers to fish migration.

Action: assess ease of fish passage.



River Shep, manor farm reach (TL395473), May 2013



River Shep RSPB Fowlmere (TL405455)

Wimpole Stream (Wimpole Hall to New Malton Golf Course, GB 105033038150)

River is classified as being of moderate ecological value (EA to provide data to aid description).

River is classed as being heavily modified. The river is impounded in its upper reaches to provide formal lakes on the Wimpole estate, and the in the lower reaches it is impounded to provide on-line ponds within the New Malton Golf Course. These ponds provide important water vole habitat. The impoundments may be able to act as barriers to prevent the upstream migration of signal crayfish. For this reason the watercourse is being considered as an Ark Site by the EA for the small populations of native crayfish still known to exist in the Cam catchment.

The river exhibits extensive gravel shoals in the Orwell area and may still contain interesting populations of invertebrates. The downstream impoundments are generally felt to prevent the upstream migration of most fish species. The river is not thought to contain any significant fish populations as a consequence of drought and impassable barriers.

Action – assess ease of fish passage

Requires picture to illustrate a typical reach

Guilden Brook (Fowlmere Nature Reserve to Barrington, GB105033038120)

The brook is classified as having good ecological status. The brook has free passage to the River Shep and then the River Rhee. Brown trout spawn where the river bed retains suitable substrate (which tends to be beneath bridges where historic dredging could not take place), pike migrate upstream to spawn and are sometimes observed in the relatively small channels as far upstream as Fowlmere. A population of brook lampreys spawn on suitable substrate near the Shepreth L-Moor SSSI. Bullhead are found where the substrate is suitable through the brook's length.

The Shepreth L-Moor SSSI has a boundary with the Guilden Brook and its water flow may assist in keeping the site damp. The brook is degraded as it runs alongside the SSSI and any restoration work would have to avoid damage the SSSI whilst being undertaken.

The brook is classed as heavily modified and it is clear that it has been dug down to act as a low level drainage channel. A short undredged reach is still present at the top end near Fowlmere Nature Reserve and should be used as a template to guide any restoration of the brook.

Requires picture to illustrate a typical reach

River Rhee (Barrington to Cam confluence, GB 105033037610)

In brief description/issues list (taken from table summarising brainstorm exercise)

Historic value – considered to be ok, Wimpole Hall and Ashwell Springs.

Development pressures – considered to be ok as no large growth areas have been proposed.

Landscape – considered to be stable, floodplain is very remote in places. Some floodplain grazing pastures still present.

River flows – considered to be at threat from low flows. Tributary streams can be supported by supplementary flows scheme setup in 1978 to mitigate effects of drought. STW effluent also supports some flows

Pollution – Considered to be stable. Agricultural run-off and STWs are considered to pose threats.

Wildlife – Considered to be stable. Rivers has provided a sanctuary for otters, water vole are present, brown trout population appears to be increasing but coarse fish may have declined.

Recreation and tourism – Considered to be of concern. River has limited access. 1 coarse fishery.

Legal considerations – considered to be ok.

Economic – Considered to be ok. Opportunity for greater angling could be explored.

Quality of life – Considered to be stable. Limited opportunity for access limits the amount of people who feel connected to the Rhee.

River Restoration potential – considered to be at threat. Many opportunities for habitat restoration exist. The Wildlife Trust completed a report entitled, “River Rhee, survey for water voles, invasive plants and habitat restoration opportunities” 2012. This document should be used as a driver for restoration of the river. High Potential.

The river is classified as having moderate ecological status (EA to provided data to aid description).

The river is classed as a heavily modified watercourse. A geomorphological walkover assessment has been conducted by the EA (pers com E Selway 2013). This assessment should be used as a basis for refining the suitability of in-channel works such as riffle placement of bed raising. Many reaches have been significantly deepened and it is suspected that historic dredging has exposed the chalk marl bed resulting in a very limited supply of coarse substrate and a greater entrainment of fines as clay particles are mobilised. It is R Mungovan’s view that the Rhee has generally become more turbid since the early 1990’s.

A number of mills, bridge structures and gauging weirs are present on the river and may present barriers to the movement of fish species.

Action – assess ease of fish passage.

Small scale marginal enhancement has taken place in the Barrington area for water voles.

Action – review the success of the habitat enhancement measures, and consider their suitability for replication elsewhere along the river.

Diffuse agricultural pollution is listed as an issue affecting the river

Action – seek information from Natural England on the uptake of buffer strip options along the river Cam. Seek to identify farmers who may not be buffering the Cam with vegetated strips.

Phosphate removal from the STW is listed as an issue.

The Wildlife Trust completed a report entitled, “River Rhee, survey for water voles, invasive plants and habitat restoration opportunities” 2012. This document should be used as a driver for restoration of the river. However, its presence should not preclude projects that come forward as “quick wins”.

There are STWs at Foxton and Haslingfield. Phosphate removal on the river is listed as an issue.

Action – investigate means of removing phosphate at the STW.

Habitat restoration works to the Rhee have been discussed with the Haslingfield United Charities at their Clock Holt site (TL4148551772). A concept project has been evolved but a means of delivery has not been identified.

The river leading to the Burnt Bridge EA gauging station is a popular village walk. In recent years the riverside vegetation has been allowed to grow to aid wildlife conservation. However, this has resulted in a disconnection from the river and selective shrub clearance has been undertaken. Haslingfield Parish Council have expressed an interest in further exploring measures that would improve the wildlife and amenity value of this reach of river (TL4136752256).

The EA gauging station is considered to present a barrier to the upstream migration of many fish species. It is also reported that its construction resulted in the drowning out of riffles upstream of it.

Action – investigate ease of fish passage.

The river downstream of the EA gauging weir at Haslingfield (TL4227852792) has a particularly poor geomorphology. The placement of gravel shoals is initially considered to be an effective means of delivering habitat gain.

Farmland adjacent to the confluence of the Rhee and Cam (TL4286153701 actually in Hauxton parish) is liable to flooding. Part of it is farmed other parts appear to be retained for pheasant shoots. As a long-term aspiration it would be desirable to consider habitat enhancement measures that maximise the potential of the land as a wetland site that would be particularly attractive to wildfowl.

The river in the Barrington/Shepreth area incorporates a number of side channels and adjacent ditches. These are likely to be resultant from the period when drainage of riverside hay meadows was important when the water table was higher. It may be possible to open up a number of these channels to aid fish passage, assist floodplain conveyance and act as backwater habitats for juvenile fish. A large proportion of the accessible riverside meadows is owned by the County Farms Estate. They are likely to be sympathetic to habitat restoration if it does not compromise farm income

Action – investigate options for maximising the wildlife, flood storage and conveyance capacity of the riverside meadows

Requires picture to illustrate a typical reach

Hoffer Brook (Newton to Rhee confluence, GB 105033038120)

The river is classified as having good ecological status (EA to provide data to aid description). The brook is generally considered to have very low numbers and diversity of fish within it. It was generally considered to be largely devoid of fish (except pike, bullhead, stickleback and brook lamprey). However recent high flows appear to have aided the colonisation of fish over a barrier that was previously considered to be impassable (TL4147650083). Minnows, gudgeon and dace have been seen shoaling in deeper water above the A10 bridge.

The brook is classed as being heavily modified. This is confirmed by the presence of a number of meander cut-off loops, and through conversation with older local people who recount stories of the brook holding good numbers of brown trout that could be caught by “tickling” under banks (R Mungovan pers com D Coote). In places the bed appears to have been dredged to the point where all of the coarse sediment has been removed leaving a soft peat-like bed which is a remnant of a wider marsh-like habitat that once covered part of this area. In other places the bed is firm with a chalky bed. A topographical survey of the brook from the railway line to the confluence with the Rhee has been completed in May 2013. Analysis of the data will explore the feasibility of bed raising and other such habitat restoration measures. The brook appears to be elevated above the surrounding land and this is likely to be a legacy of when the mill at Harston was constructed as it would have required the maximise delivery of water in order to drive it machinery. A low level drainage ditch runs beneath the brook, below the Rhee and discharges downstream of Harston Mill.

Action: Explore suitable options for habitat restoration through the evaluation of topographical data.

The brook has cattle grazing adjacent to it in its lower reaches. Whilst providing a valuable grassland habitat the cattle also place pressure upon the brook through the poaching of margins. Parts of the brook are fenced but other areas could benefit from new fencing. At one point the brook is severely impacted by silt accumulation to the extent where high flows are pushed out of channel and flow overland into a lower level drainage channel.

An interesting network of drainage ditches is found adjacent to the brook north of the A10. The arrangement would suggest a possible water meadows system. However, no feed from the brook appears to be present and the network of ditches is probably simply a flood meadow. The ditches and associated meadows are likely to be of value to winter wildfowl.

The brook has suffered from low flows during drought years but the EA has the ability to deliver a supplementary water flow to mitigate low flows. In 2011 the brook was nearly dry above the railway line. Beneath the railway line the brook does not dry up due to a spring line and the brook being deeper and ponded.

The reach above the railway line could be considered as semi-natural as it has not received any degree of maintenance for over thirty years. In places there is extensive fallen woody debris which impounds the channel and is thought to be contributing in part to siltation of the channel. However, in places there are fallen trees that are providing flow deflection and in-channel habitat diversity and have been in place for several decades. Such features should only be removed with care.

Action: assess the value of selective debris clearance to aid flow and natural processes.



Hoffer Brook (TL416490), Jan 2013



Hoffer Brook (TL417494)

Bourn and Bin Brooks

In brief description/issues list (taken from table summarising brainstorm exercise)

Historic value – considered to be ok. Historic interest at St Johns College.

Development pressures – considered to be under threat. Expansion of developments associated with Bourn Airfield and Cambourne West.

Landscape – considered to be stable. Some areas could definitely be improved..

River flows – considered to be at threat. Has dried up as far down as Barton in 90's. Significant flood risk posed to properties (Bourn, Caxton, Toft, Gough Way). Balancing pond on Bin Brook option was not pursued.

Pollution – Considered to be a threat. Phosphate problem on Bourn from STW and agriculture.

Wildlife – Considered to be stable. Fish populations are perceived as poor. Significant threat posed by non-native invasive plants but control measures are underway on the Bourn.

Recreation and tourism – Considered to be stable. Adjacent to the Bin Brook is the Coton Countryside Reserve. The Bourn provides the setting for two golf courses. A Cambourne to Cambridge riverside walk leaflet was produced by CVF. Riverside access is restricted in places.

Economic – Considered to be ok. However, the threat posed by flood risk to some properties is a serious issue would should be addressed through a holistic scheme.

Quality of life – Considered to be ok. Not contributing much – over looked by many – re-grading of steep bank.

Legal considerations – none known to be an issue. However the Bourn has maintenance split between SCDC, EA and private owners. Could provide better connection to river.

River Restoration potential – considered to be an issue to address. The rivers both have much capacity to be improved to provide wildlife, recreation and flood risk management gains. High potential.

Bourn Brook (Caxton to Byron's Pool, GB 105033042690)

The brook is classified as having moderate ecological status (EA to provide data to aid description).

The brook has a dispersed population of water voles in its middle to upper reaches.

The brook is classed as being heavily modified. This is apparent when considering the river plan form where meander cut-offs exist and reaches appear to have been straightened. The Bourn drains a largely clay catchment which can give it a flashing discharge. The river does not appear to have had any water mills along its length which makes it unusual within the Cam catchment but means that no significant barriers exist to the upstream migration of fish. The footings of some bridges, and EA gauging station and fords may present barriers to fish movement.

Action: assess ease of fish passage.

The brook in the area of Bourn is an Awarded Watercourse with maintenance falling to SCDC. SCDC undertake general clearance of large debris from the channel and occasional aquatic weed clearance. The villages of Bourn and Toft experience flooding.

The Wildlife Trust produced a report "Bourn Brook Kingston Disused Railway LNR to Caldecote Bridge, Management Recommendations" in 2012. This document contained a number of reach specific habitat restoration prescriptions many of which would deliver enhanced channel morphology. This document should be used as a driver for habitat restoration on the river but should not preclude any "quick wins".

Phosphate stripping from Bourn(?) STW is listed as an issue. The EA have already started to take forward a project with the National Farmers Union to reduce phosphate loading of the catchment. Diffuse agricultural run-off is listed as an issue.

Action – seek information from Natural England on the uptake of buffer strip options along the river Cam. Seek to identify farmers who may not be buffering the Cam with vegetated strips.

The non-native invasive plants of Himalayan balsam and giant hogweed are present. The Wildlife Trust and Countryside Restoration Trust have been working in partnership on the Bourn Free Project to control such species as well as the American mink.

Action: survey the extent of non-native plants and consider suitable action to achieve eradication.

Habitat restoration work has taken place on the brook in the vicinity of Barton by the Countryside Restoration Trust in the 1990's. It is believed that bank re-profiling combined with a riffle placement was undertaken (refer to New Rivers and Wildlife Handbook). It is not known if post-project evaluation of this work ever took place. It is believed that the Countryside Restoration Trust wish to undertake further in-channel and wetland enhancement measures.

Action: assess the suitability of the habitat restoration work on the brook and consider whether the prescriptions should be applied to other parts of the brook.

The brook above Toft exhibits interesting geomorphological features with riffles, high eroding cliffs and large woody debris. This area appears to have received little maintenance being neither the responsibility of SCDC nor the EA. It provides a template as to how a natural reach of the brook might look. The lowest reach of the brook is considered to be significantly over-shaded. This is restricting the growth of marginal vegetation and potentially deterring fish from migrating upstream.

Action: Consider if there scope for retaining large amounts of large woody debris so to aid natural processes and slow the passage of water downstream, plus provide a greater degree of in-channel habitat.

Requires picture to illustrate a typical reach

Bin Brook (Coton to Cambridge, GB 105033042680)

The brook is classified as being of moderate ecological status (EA to provide data to aid description). The brook connects to the Cam in it lower reaches where dace and chub used to be seen. It is not know it the brook contains any significant fish populations at present.

Action: undertake fish survey of brook.

The brook runs beneath a number of college buildings as it nears passes through Cambridge. It is not known whether these present impassable barriers to the upstream migration of fish.

Action: assess the passage of fish.

The brook is known to provide habitat for water voles particularly in its upper reaches towards Coton. Tree coverage and scrub is reducing the habitat potential of some reaches for water vole through channel shading.

Action: survey the brook for water voles and propose selective tree thinning to allow water vole population expansion.

The brook is classed as heavily modified and appears to have been straightened is some areas.

However, where maintenance is not regularly undertaken (such as through the Coton Countryside Reserve) the channel is exhibiting dynamic processes as channel slumping take places and small gravel shoals accumulate.

Action: Consider if there scope for retaining large amounts of large woody debris so to aid natural processes and slow the passage of water downstream, plus provide a greater degree of in-channel habitat.

Requires picture to illustrate a typical reach

Lower Cam

River Cam (Byron's Pool, City of Cambridge to Baites Bite)

In brief description/issues list (taken from table summarising brainstorm exercise)

Historic value – considered to be ok, World Heritage Site, The Backs, Byron's Pool. Many very important sites.

Development pressures – considered to be ok but river faces constant pressure.

Landscape – considered to be stable, incorporates a number a typical English scenes. Scope exists for improvement.

River flows – considered to be at threat from low flows. River is impounded and controlled by Cam Conservators. Flood and drought flows have to be managed.

Pollution – Considered to be ok. Misconnections in sewer and surface water connections (University to follow-up to set example). Diffuse urban pollution.

Wildlife – Considered to be at threat. Pressures due to City's evolution.

Recreation and tourism – Considered to be stable. Not as good as could be. Rivers suffers as a honeypot site. Need more moorings. Has good public access

Legal considerations – considered to be at threat. Punts on river, mooring permissions, riparian landowner agreements.

Economic – Considered to be ok. Contribution to the economy of the city. Quality of life underpins this. Is there scope for improvement? If so could be of more value to tourists encouraging them to stay longer.

Quality of life – Considered to be ok. Picnicking, swimming, enhances city experience, need to encourage more to value the river setting.

River Restoration potential – considered to be stable. The impounded nature of the river limits the ability to allow natural process to prevail. Habitat “reefs” could be created in back channel and inaccessible edges away from punts.

Cam (Bait Bite Lock to Popes Corner)

In brief description/issues list (taken from table summarising brainstorm exercise)

Historic value – considered to be stable, Denny Abbey, Quay Mill (NT) Wicken Fen (NT) Carr Dyke and riverside pubs all contribute important historic sites.

Development pressures – considered to be under threat. Development at Waterbeach Barracks may place threat upon the river in terms of discharges and recreational use.

Landscape – considered to be under threat, some areas could be nicer. Pollard trees are considered important landscape assets.

River flows – considered to be ok. Influenced by river flows above and by weirs through Cambridge.

Pollution – Considered to be ok. Milton STW is downstream of the city and potentially could be a significant impact.

Wildlife – Considered to be ok. Cam Washes SSSI, Kingfishers Bridge wetland, Wicken Fen SAC river is felt to be in generally good order for the fenland waterway.

Recreation and tourism – Considered to be stable. Cambridge to Ely riverside trail. Historic sites provide a national and international draw for visitors. Cycleway/foot bridge could link NT sites to Denny Abbey.

Legal considerations – considered to be ok. IDBs present.

Economic – Considered to be stable. A marina is considered important for getting boaters to stay longer in Cambridge. Keeping area attractive & interesting for business.

Quality of life – Considered to be stable. Not been studied yet, feasibility is behind work carried out on Rhee & Granta