The River Cam Catchment: Issues, challenges and actions

Cambridge Past Present and Future is working with other key organisations – the Cam Valley Forum, the Cam Conservancy, local councils and the Environment Agency – to develop a strategy to protect and improve the environment of the river Cam. This ambitious plan will encompass the whole river basin, stretching from the river's various sources to its confluence with the Great Ouse just south of Ely.

Our vision:

A river system and riverside land that supports a flourishing and varied wildlife and provides an attractive environment for residents, visitors and businesses.

This includes:

- clean water
- well maintained river flows, avoiding flooding where it is not wanted and low flows at times of drought.
- more wet meadows in the flood plain, particularly in the river's upper reaches,
- more riverside trees, and patches of wet woodland, especially between watercourses and agricultural land
- the river and riverside land kept free of litter and invasive non-native plants and animals
- a peaceful river with the tranquil sections protected, and pressures and conflicts on the congested stretches resolved
- an accessible river with existing public open spaces kept open and uncluttered, and new public spaces and paths created where they would not harm wildlife habitats
- views to the river kept open, and new views opened up when development occurs
- buildings, riverside structures and sites of design, historic and community interest identified, cherished and protected
- widespread public understanding of the ecology of the river and the threats to it
- local groups actively caring for their nearby watercourses and adjacent land
- an attractive setting for new and existing business
- everyone – councils, businesses, public agencies and voluntary organisations – working together to improve the river and its environment

Many actions by many different agencies will be needed to realise this vision – some small, cheap and easily implemented, others more costly or problematic. The following pages list the actions identified so far.

The table below is a collation of issues, challenges and actions for the river Cam and its tributaries identified so far by the working group. **It represents work in progress and not a final programme**.


historic environment


development pressures


public access


landscape


riverflows


drainage


pollution


wildlife


recreation and river use


governance/promotion/funding


highways issues


quality of life


legal constraints


climate change

Comments	Issues	Actions
River Reach: Whole River		
The Cambridgeshire Green Infrastructure Strategy was produced in 2011 by a partnership lead by Cambridgeshire Horizons and updates a 2006 study that focused on the Cambridge City area. Green Infrastructure is the 'network of natural and man-made features such as open spaces, woodlands, meadows, footpaths, waterways and historic parks, which help to define and to link … communities, villages, towns and cities … with each other and to the surrounding landscape.' Green Infrastructure provides multiple benefits including: • attractive and distinctive places that respect and enhance local character and heritage • recreational and cultural opportunities and experiences for residents and visitors • a healthy and high quality environment • support for and enhancement of biodiversity, landscapes, heritage and geodiversity • ecological or ecosystem services • a sustainable future The strategy covers the whole of Cambridgeshire including around 50% of the Cam Catchment area. A 'Strategic Network' of Green Infrastructure	 **Green Infrastructure**  A key aspect of the development strategy for the Cambridge area is a number of major new urban extensions to the City. Land has already been released at the southern fringe, at north-west Cambridge and at Cambridge Airport.  Habitat enhancement and creation, often with associated flood alleviation and carbon capture benefits  Maintaining the historic character of Cambridge, and the villages and rural character of the countryside despite the development pressure  Deficiencies in Accessible Natural Greenspace (ANG) at the 500ha plus, the 100ha plus and the 20ha plus standard in Cambridge and the surrounding areas. There are also significant deficiencies in the 2ha plus standard across the whole area.  The variety of listed buildings and conservation areas, the colleges, river and the commons, residential areas, open spaces (such as the Backs) and	 Biodiversity: by enhancing, linking and protecting the nationally, internationally and locally important nature conservation designations within the area.  Climate Change Adaptation measures such as carbon sequestration, and flood storage and alleviation as well as urban cooling through tree planting and green space creation.  Developing existing gateways that will result from large-scale habitat restoration, heritage sites and parkland, significant housing growth and the association between Cambridge and strategic movement routes, navigable waterways (including improvement), neighbouring strategic destinations and wider countryside connectivity.  Heritage: by using assets which are associated with Cambridge, housing developments and the network of historic linear features and sites across the strategic area.  Landscape: contributing to landscape character through the growth of Cambridge, and

Comments	Issues	Actions
priorities for Cambridgeshire has been identified and mapped. The Strategy suggests opportunities for the funding and delivery of Green Infrastructure projects and initiatives. The Cam Catchment falls within the 'Cambridge and surrounding areas' strategy area.	gardens, archaeological and historic sites, natural features and habitats all contribute to the distinctiveness and uniqueness of the City's landscape and need conserving.  The transition between the relative peace and space of the open space such as The Backs and the densely packed City streets is very marked. These qualities are fragile, finite and irreplaceable, and should be safeguarded.  The distribution, physical separation, setting, scale and character of the necklace of villages surrounding the City are essential to the character of the countryside.	through improving and maintaining the key habitats of the area.  Rights of Way: Improve the Rights of Way network to allow access to Green Infrastructure sites, the wider countryside, including through the major new developments on the edge of Cambridge and the new settlements of Cambourne.  Some significant Green Infrastructure projects that are located within the Cam catchment include: • Chalk Rivers project • Fowlmere Nature Reserve extension and development of facilities • Linear monuments • Woodland linkage project • Fens Waterways Link Specific actions in target areas include:  **Anglesey Abbey**: opportunities to create a network of way-marked routes for walkers, cyclists and horse riders linking Cambridge, local villages, Wicken Fen, Anglesey Abbey and the wider countryside.  **Cambridge**: The urban extensions to Cambridge provides opportunities to deliver new areas of Green Infrastructure, both strategic and local.

Comments	Issues	Actions
West Cambridgeshire Woodlands The West Cambridgeshire Woodlands target area		 Opportunities for enhanced management of and linkages between Cambridge's commons and riverside meadows.  Floodplain habitat restoration to improve biodiversity in the area.  City fringes projects that are being progressed include the Gog Magogs Countryside Project, Trumpington Meadows County Park and Byron's Pool Local Nature Reserve  Planting regimes for existing and proposed open spaces should consider climate change.  The growth areas provide opportunities for enhanced linkages between the City, the surrounding countryside, the navigable river and Green Infrastructure sites  Ensure proposed development to remediate deficiencies to ANG. Provide linkages between growth areas, the existing City, the river and nearby villages and the surrounding countryside, such as from Trumpington Meadows into the City along the River Cam, to Grantchester Meadows, and out to nearby villages such as Haslingfield

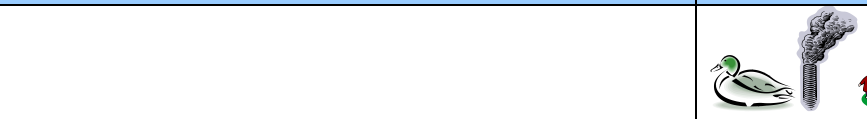
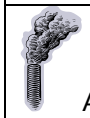
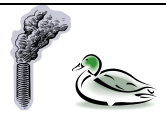
Comments	Issues	Actions
encompasses the clay plateau between the Bourn Brook and River Rhee. This clay plateau contains one of the largest and most important clusters of ancient woodland within the county as well as the parklands of Wimpole, Longstowe and Hatley Estates. Within the target area the West Cambridgeshire Hundreds Project has been established. The project has formed a partnership to take forward coordinated efforts across multiple landowners to create a high quality ecological network based around linking the ancient woodlands, better management of the woodlands and restoring / creating other lost habitats such as species-rich meadows. The partnership involves private landowners, Wildlife Trust, National Trust, Woodland Trust and FWAG.		 **Cambourne**: Cambourne greenspaces management and enhancement.  Demonstration sites such as Lamb's Drove show how modern developments can be "flood adapted"  Opportunities to preserve and enhance existing landscape elements while also restoring the historic field patters close by, and extending green connections into the wider countryside  Opportunities to establish connections within the built areas and to the wider countryside will emerge as Upper Cambourne is developed.  **Wimpole**: Cycle tracks will provide a gateway resource for public access into the wider footpath and bridleway network  Opportunities for interpretation of the site which is Grade 1 and Grade II* listed and includes a Schedule Ancient Monument and a Grade I Registered Park and Garden  Maintain and improve the water related interest of the historic landscape

Comments	Issues	Actions
		 Maintain and improve the Estate as an area that continues to contribute to meeting Accessible Natural Greenspace Standards (ANGSt).  Rights of Way: proposed provision of 12 miles of tracks over new routes  **West Cambridgeshire Woodlands:** improve the management of ancient woodlands, undertake woodland linkage projects, create species-rich grassland and support the conservation of Water Voles through mink control – particularly along Bourn Brook.  Create and manage woodland to contribute to woodfuel production and for the storage of carbon  Promote and explain the history of traditional woodland management, the landscape and the social history of ancient woodlands.  Improve and maintain the landscape through woodland creation and management  Create new areas of accessible greenspaces through woodland creation

Comments	Issues	Actions
		 Create better links from local villages to neighbouring woodlands
Many of the riverside open spaces are valuable for flood storage, climate change, wildlife, landscape, amenity, recreation and tourism, health and wellbeing. Some are protected, others need protection. The river clearly is of great importance to those living near it or using it. We need to get the balance right between uses, and this might vary for different parts of the river: each tributary has its specific issues. **User groups have identified some positive issues within the catchment including:** • the reduction of ground water abstraction at Barrington quarry resulting in greater local spring flow. The restoration of the Rivers Shep and Mel are noted as excellent local examples. • The Canoe Club reports that water quality in the river appears to have improved through Cambridge in recent years (Note: robust data on water quality is available from the Environment Agency). • Ashwell Springs was mentioned as being important to the river, as its source. • It has its own navigation authority (The Cam Conservancy) • The river is mostly remote from roads. People can enjoy peace and tranquility. • History has created a legacy of infrastructure to serve visitors such as the Orchard Tea Rooms at Grantchester. • Local pubs also situated next to the river (e.g. Anchor, Fort St George, The Plough at Fen Ditton, Bridge Hotel at Waterbeach, Five Miles from Anywhere No Hurry Inn at Upware).	 **Recreation and River Use**	
	 Multi-functional river with sometimes competing and conflicting uses	 Promote research projects e.g. with the University, into river biodiversity, impacts of tourism, development, and/or pollution .
	 Tourism brings money into the local economy; both directly and indirectly e.g. punt revenue, pontoon and boat licenses.	 Ensure that funding, policies and practice provide for pleasure boating on the Cam as the population grows.
		 Carry out a tourism benefits evaluation.
		 Manage conflict between competing user groups and enhance the user experience through improved communication and control `
		 Explore opportunities where development could help enhance waterspace where appropriate.
		 New development run off/flooding issues may require consideration for wider impacts on existing uses of river. Opportunity for wider water management & enhancement schemes funded by developers through planning.
		 Provide trail guides for walkers and canoeists; install interpretation boards and more public art; reissue the EA Anglian Waterways map for boaters.
		 Make more use of web-based promotion of the

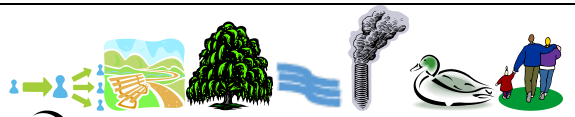
Comments	Issues	Actions
• The river is a magnet for communities. The tributary rivers are like 'tentacles' spreading from the centre; often the focus for community activity such as walks, wildlife watching and dog walking. • There are public rights of way near the river through much of Cambridge and below to Pope's Corner, but very few in the upper river basin. A Green Infrastructure Strategy is already in place and should seek to better link routes. • People love the river and are passionate about it. This is a very positive force. • The special setting of Cambridge, its colleges and the river running through the Backs providing a global brand that can be used to attracted visitors and businesses to Cambridge and its surrounding area. There are zones of landscape stratification; a progression from the City passing wooded lands out into the Fens. The landscape of the lower Cam is open. All within relatively easy reach of the City.		river, especially to/with young people.  Promote river studies in schools, outdoors learning sessions, the value of the local habitat, and family participation in water-based activities, including junior rowing and sailing. Has potential to link with awareness campaigns run by Cambridge Water Company.
	River Flows	
	Increasing flood risk due to climate change and urban creep. Declining river flows, likely to worsen with increasing population, changing rainfall patterns and abstraction. Historic canalisation and culverting of tributaries. Increased siltation due to lack of dredging. Past over-licensing leading to increased abstraction. Stable population needed to protect water resources Perception that rainfall is more erratic leading to unpredictable river flows. Perception that EA and private landowners do not clear blockages as much due to declining budgets. Maintenance of good water flows is needed. Many of our watercourses are supported by pumped borehole water in droughts. Water abstraction leading to low flows versus increased runoff arising from development. Centralised flood management control by EA not always responding effectively to local impacts.	 Create additional multi-functional flood storage areas that can also increase biodiversity.  Cambridge Water is keen to support water related biodiversity projects through its Asset Management Plan 6 scheme.  Better use of water recycling options to improve/maintain available resources against increasing demands for water use in the home.  Create two-stage channels in smaller watercourses to increase areas of storage and narrowing of watercourses to increase low-flow velocities to cleanse silt from the channel. Undertake selective phased dredging.  Retrofit strategic SuDS to provide additional treatment stages prior to discharge of surface water from urban areas.  Open culverted sections of watercourses. There are now strong policies against culverting and efforts are being made to de-culvert or increase daylight in culverts  Remove redundant structures (e.g.weirs). Innovative approaches must be found to balance high flow/high rainfall & runoff events to benefit times of

Comments	Issues	Actions
		low flow.  Campaign for the use of Sustainable Drainage Systems (SuDS) in new developments.  Take water from industrial buildings and use balancing lakes as opposed to closed-off underground storage systems.  Explore potential for installing micro-generators at some of the many old water mills in the upper river basin.
	Wildlife	
	Increased shading of smaller watercourses leading to a lack of in-channel vegetation. Rivers need to be allowed to exhibit natural dynamic processes for the benefit of many fish species (such as wild brown trout), invertebrates (such as native crayfish), and plants (such as water crowfoot). Fallen trees have the potential to kick-start many dynamic processes if properly managed as opposed to simply removing them River dredgings have historically been spread along river banks resulting in raised levees and nutrient rich soils. Fish poaching using nets is of serious concern at some accessible areas. Invasive species, such as Himalayan balsam and floating pennywort, are already present and likely to spread.	 Re-naturalise riverbanks by the removal of metal sheet piles and the introduction of soft engineered solutions. Work with landowners to improve riparian habitats Support the survey and eradication of invasive non-native species. Increase fish passage around structures (eg weirs).  Support initiatives to enhance nature conservation along river corridors, e.g. Paradise LNR.  Establish better connectively of green corridors and, where restricted public access is desired, use natural features such as water filled ditches and wetlands to control people's movements.

Comments	Issues	Actions
		 Continue to seek the creation of buffer strips adjacent to agricultural land to control runoff.  Use aerial photography to help identify invasive plant species. Share best practice and knowledge of the issues though web-based techniques.  Protect water vole populations and positively encourage their expansion.  Restore energy into reaches through habitat improvement works.  Ensure rivers have temporary wetland habitats for amphibians and invertebrates  Encourage the formation of new river groups to care for watercourses
	 **Pollution**	
	 Although water quality is generally improving, diffuse discharges and misconnection of drains causes local pollution.  Undocumented outlets into rivers and watercourses.  Ageing sewerage and flood control structures contributing to pollution of the river.  Declining river flows and over-abstraction of aquifers	 Undertake survey to find surface water outlets; identify live outlets and remove redundant ones.  Retrofit water quality improvement measures by using both natural features such as constructed wetlands and manmade interventions such as silt removal technology.  Construct wetland buffer zones to intercept agricultural runoff. Seek to increase the general width of buffer strips.

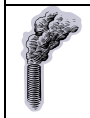
Comments	Issues	Actions
	exacerbated by the planned increase in development.  Fish numbers have declined, due to droughts, floods washing fish downstream, overfishing and poaching.  Occasional inappropriate use of herbicides to control river plants.  Discharge from semi-permanent residential and pleasure boats causing pollution to the river.  Rubbish on the river is very noticeable when rowing.  Development and population increases pressures upon water infrastructure and the attractiveness of the river to users.  Neglect of smaller watercourses (ditches) can worsen flood events.	 Add treatment stages to new surface water drainage systems within new developments beyond legal minimum treatment standards.  Influence planning applications in order to conserve the integrity of the river corridor and surrounding commons  Use the planning process to influence, guide and encourage developers to carry out improvements and enhancement to land adjacent to the river and tributaries  Improve/extend litter picking on the river and riverbanks.  Educate the public (using many approaches) about where surface water drainage goes.  Join up the City and SCDC Local Plan's thinking and coordination over moorings, river use, public open spaces, planning and housing.  Where over abstraction is shown to impact on rivers effort should be made to lobby the EA and Water Company to ensure full investigations.
	 **Landscape**	

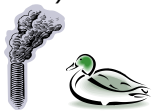
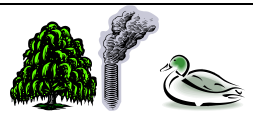
Comments	Issues	Actions
	 Tree works, such as pollarding for wood products and firewood, no longer regularly done.	 Encourage action in relation to pollarding by Parish Councils and landowners.
	 Poor land management impacts on biodiversity and causes silting. Issues include serious erosion e.g. at Ditton Meadows, not being flagged up and fixed by land agents.	 In selected areas phase tree management and replanting a greater distance away from top of bank opening up watercourses.
	 Many riverside meadows are sustained by grazing practices. Yet graziers are becoming increasingly hard to find within the catchment. Grazing helps sustain riverside landscapes.	 Seek information from Natural England on the uptake of buffer strip options along the river Cam. Seek to identify farmers who are not currently participating  Support the evolving Cam grazing strategy to sustain this important practice
	 **Access**	
	 Right balance for access needed e.g. footfall at some sites causing disturbance to wildlife, particularly by dog walkers.	 Identify where improved public access to the river is desirable, linking existing public rights of way from villages would bring most public benefit, and could be a catalyst for seeking funding.
	 **Historic environment**	
		 Carry out an audit of the overlapping official protective designations relating to historic sites, and areas of nature conservation and landscape value.

Comments	Issues	Actions
	Governance, promotion and funding	
		 Develop a River Cam Strategy Plan to guide delivery of opportunities.
		 Make use of the Local Nature Partnership to bring economic and health benefits to communities through Friends Groups, Parish Councils and/or volunteers.
		 Work with CamEO to explore the mechanism to forming a River Trust for the Cam catchment.
		 Use the Water Framework Directive (WFD) as a driver for funding river restoration works. Continue collaboration with the EA. Contact HLF re. landscape-based initiatives.
		 Explore opportunities for funding via CIL and Natural England 'Higher Level Stewardship' (Conditions can be tailored to set down access agreements, control of invasive species etc.)
		 Appoint a public celebrity to front the group
River Reach: Upper Cam Incorporating Debden Water, Wendon Brook, Fulfen and The Slade		
	River Flows	

Comments	Issues	Actions
	Many of the upper most streams and brooks run dry by mid-summer. Investigation is underway as to whether low flows in summer is natural (i.e. they exhibit winterbourne characteristics) or if it is as a result of over-abstraction	Commission 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). Consider what scope exists to create a more natural channel form Investigate role of sluice gates in city in relation to upstream flow and low summer flows
	Wildlife	
	Identify those headwater streams that are ecologically most important and ensure that they do not deteriorate any further.	Consider scope for retaining large amounts of woody debris in the upper reaches to aid natural processes and slow the passage of water downstream, whilst providing a greater degree of in-channel habitat. Assess ease of fish passage Survey the extent of non-native plants and consider suitable action to achieve eradication. Assess the benefits of in-channel habitat improvements to decide whether applicable throughout the reach on a wider basis. Review EA fish survey data to establish where good populations exist and where areas are still poor.
	Pollution	
	Many small headwater streams receive relatively large volumes of road run-off. These intermittent discharges may be causing pollution.	Identify main sources of water quality deterioration (eg storm drains that discharge to the river) and seek remedial action.

Comments	Issues	Actions
	Landscape	
		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. Map the remaining wet meadows in the upper reaches of the Cam basin, as a basis for seeking protection.
	Access	
	Lack of river-side access in the upper reaches of the Cam valleys. This contributes to the heavy use of the few available footpaths, and also means there is little incentive to form local groups, such as the River Mel Restoration Group, to care for rivers.	
River Rhee: Incorporating Whaddon Brook, River Mel, River Shep, Wimpole Stream, Hoffer Brook		
The River Mel Restoration Group have grown local plants in buckets and used them to populate newly restored areas of the river.	**River Flows**	
	Flood avoidance work in Meldreth has demonstrated the need to retain the link between historic drainage networks (such as those in the High Street) and the river.	Consider if there is scope for retaining large amounts of woody debris in the upper reaches so as to aid natural processes and slow the passage of water downstream, whilst providing a greater degree of in-channel habitat. Commission geomorphological assessment

Comments	Issues	Actions
		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).  Work with the EA to re-examine the location of the supplementary flow discharge to the River Mel.
	 **Wildlife**	
		 Assess ease of fish passage.  Assess the benefits of in-channel habitat improvements to decide whether to repeat on a wider basis.  Encourage SCDC to undertake channel walking to scope the potential for in-channel habitat enhancement measures along the Award Watercourses  Investigate fish populations through electric fishing surveys  Investigate options for maximising the wildlife, flood storage and conveyance capacity of the riverside meadows  Identify the species richness of riverside meadows, and collect and distribute seeds from them.  Survey the extent of non-native plants and consider suitable action to achieve eradication.
	 **Pollution**	
		 Investigate a means of buffering the discharge from road drains so as to address urban runoff.

Comments	Issues	Actions
		 Identify main sources of water quality deterioration (such as storm drains that discharge to the river)  Seek further water quality improvements at Royston STW  Investigate consent compliance regarding storm overflows from Melbourn STW
	 **Landscape**	
		 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.
	 **Access**	
	 Heavy use of the riverside footpath at Meldreth, which has increased since the River Mel Restoration Group's improvements and reflects the limited river-side access in that area	 Ensure restoration of rivers, especially south of Cambridge, is not carried out solely to enhance fish populations but considers the interests of canoe and kayak users, especially where public money is involved
River Reach: River Granta		
	 **River Flows**	
		 Consider if there is scope for retaining large

Comments	Issues	Actions
		amounts of woody debris in the upper reaches so as to aid natural processes and slow the passage of water downstream, whilst providing a greater degree of in-channel habitat.
	 **Wildlife**	
		 Assess ease of fish passage.  Assess the benefits of in-channel habitat improvements to decide whether to repeat on a wider basis.  Survey the extent of non-native plants and consider suitable action to achieve eradication.  Repeat fisheries survey of the Babraham reach to assess effects of restoration works
	 **Pollution**	
		   Identify main sources of water quality deterioration (such as storm drains that discharge to the river)
	 **Access**	
		   Ensure restoration of rivers, especially south of Cambridge, is not carried out solely to enhance fish populations but considers the interests of canoe and kayak users, especially where public money is involve
River Reach: River Cam - Byron's Pool to Baits Bite		
Summary of Cambridge City Council riparian / floodplain biodiversity projects: Stourbridge Common Designated as a Local	 **Recreation and River Use**	

Comments	Issues	Actions
Nature Reserve (LNR) in 2012. The Wildlife Trust has completed botanical surveys in 2013 to inform a management plan to be produced in 2014. Common has a supportive Friends Group keen on biodiversity / landscape / access issues etc. Stourbridge Common Riverbank Repair: currently going to tender to develop a soft engineered approach for replacement of the existing concrete river bank. This will include creation of a diverse aquatic marginal habitat. Priority stretch to be completed in 2013 / 14 with on-going phased programme subject to funding. Sheep's Green & Coe Fen designated as LNR in 2012. Management plan prepared with the Wildlife Trust in 2012. Plan includes: grazing, cutting, restoration of historic channels, control of invasive weed species etc. Logan's Meadow LNR extended in 2010 to include riverside section of the former Pye's pitches. A backwater and reedbed habitat creation scheme is planned for March 2014 (Subject to planning). A natural fish pass was installed at Byron's Pool LNR in 2010 /11 Management Plans for Hobson's Conduit now in place from Nine Wells LNR, through Clay Farm Green Corridor, Accordia and Sheep's Green. Including Vicars Brook. Draft Local Plan policies are in place dealing with protected species, designated sites, river corridor, surface water runoff, SUDs etc. The city works closely with the Wildlife Trust to run weekday and weekend volunteer work parties on LNRs, City / County Wildlife Sites and other natural green spaces in and around the City. Many of these are within the river corridor. Specific river projects include the pulling of Himalayan Balsam along the river. Paradise LNR Marsh Enhancements: in October 2013 a section of the existing marsh will be dug to	 Moorings pressure including the lower river below Baits Bite Lock. Ribbon development of residential moorings is visually obtrusive in an otherwise rural setting.  The City Council has a mooring Policy but no mooring Strategy that looks at (i) competing uses/needs in different stretches, (ii) extent to which public amenity of river bank and water is sacrificed to permanent mooring. The loss of two riverside pubs with public mooring has worsened the situation.  There is an imbalance between leisure and residential moorings. There are also episodes of "rogue" mooring which are hard for the Conservators to regulate. In other cities moorings near the heart of the city are reserved solely for visitors and residential moorings are found in off-river cuts/marinas.  Population increase: If 1% of a population of 10,000 takes up rowing, that's another 100 people rowing on the river, potentially another 100 craft, and that excludes the student population of the Universities.  The effective privatisation of riverside space for moorings results in loss of public amenity; can't see the river for the boats; can't get to the water's edge.  Barbeques litter and vandalism, particularly at 'honeypot' sites such as Grantchester Meadows. These sites are over-used; the banks are eroding.  Lack of specific angling platforms to define areas where angling can take place safely and without conflict to other river users.  There is a general inaccessibility of the river to	 Introduce measures to reduce pressure of punts on river  Develop a moorings and servicing facilities strategy, rather than just a moorings policy to protect the river. Learn from other authorities' mooring policies and strategies, e.g. City of London, Canal & River Trust.  Construct further angling platforms in appropriate locations.  Construct river access areas so that boaters and other river users can access the river.

Comments	Issues	Actions
set back succession and reduce dominance of existing vegetation. Project includes diversion of existing ditch to slow surface water runoff and treat through the marsh. The Cambridge Historic Core Conservation Area Appraisal recognises that large parts of the floodplain and setting of the River Cam are of very high significance, with Sheep's Green and Coe Fen, an important part of the setting of the core area of Cambridge.	various user groups.	
	River Flows	
	Mature trees which are prone to toppling in, risk of public injury or obstruction of the navigation. Lack of flood defence enforcement by the EA in the upper reaches. Sluice gates can be opened to increase flows but it is unclear that there is any regular policy for this. The control of water through the city impinges on water levels upstream and downstream, both in regard to flooding and lack of flow Lack of tree management along certain reaches.	 Byron's Pool. Consider (as a long term aim) replacing the weir with a less obtrusive structure with a sluice to encourage scouring of bed of pool.  Snob's Stream. Remove encroaching scrub which collects litter and impedes flow.  Persuade colleges to clear rubbish more regularly from ditches on west side of river  Explore siltation levels behind mills and what measures can be delivered to improve their condition and operation**.**
	Wildlife	
	 Backwaters in the City need tackling. Sediment levels are very high reducing biodiversity, but the mud needs to go somewhere and sometimes it can be contaminated, which greatly adds to costs.  Siltation caused by natural processes and boat-wash. Loss of riparian habitats, also river narrowing and vegetation encroachment across a shallowing riverbed.  A lack of specific cattle watering areas leads	 Mill Pond: improve fish passage  Implement adopted Sheep's Green and Coe Fen Management Plan.  Develop a co-ordinated plan to enhance Cambridge backwaters link (unsure as to what this is)with checking for misconnected drains.

Comments	Issues	Actions
	to bank erosion	 Construct cattle drinking areas in appropriate locations and consider fencing to protect more vulnerable river sites
	 Tree management required	 Develop a tree management plan (similar to that produced by the Conservators) to aid the positive management of important riverside trees.
	 **Drainage**	
		 Stourbridge Common: support drainage and nature conservation aspirations and projects on the common.
	 **Pollution**	
	 The River Cam is at the heart of Cambridge, and it is threatened by growth, but growth can be an opportunity as well as a threat e.g. Trumpington Meadows and the Country Park.  Sewage and pollution are often related to flooding from storm events, where raw sewage is washed out from pumping stations. There are problems of septic tanks discharging into the river, particularly with properties on Fen Road where bleach is added to the septic tanks and concern about the discharge from residential boats.	 Grantchester Meadows: discuss with landowner (King's College) action to reduce bank erosion and pollution of river by trampling cattle.  Backs: seek cooperation with riparian colleges to identify and rectify misconnected drains and to clear rubbish more regularly from ditches on west side of river  Stourbridge Common: influence planning applications to the south of common, e.g. Ditton Walk, as well as north of river, in order to safeguard the integrity of the protected open space particularly visual amenity.

Comments	Issues	Actions
		  Fen Road area. resolve serious local pollution of river and ditches from caravan sites along Fen Road
	 **Landscape**	
	  Increased development in the flood plain  Is the river through Cambridge and in the countryside attractive enough to the general public? This includes the Cambridge commons, where there is concern that they will become urbanised with too many lights, tarmac etc.   Main Drain 34 discharges into the Cam through an ugly modern brick structure that is out of keeping with other similar structures. Need to ensure that all developments both large and small are appropriate to the setting.	  Manage building development in river corridor to deliver multiple benefits   Coe Fen: Cut back some of the overhanging trees and bushes from the ditch along eastern edge; remove encroaching brambles and graffiti from Watergate; plant willows or other appropriate trees to shield the unattractive rear of Doubletree Hotel.   Resist further clutter of signs and seats on Coe Fen and other riverside commons and greens.    Backs: improve and upgrade the public and private realm to retain and enhance quality landscapes and detailing (surfacing, directional signage, interpretation, furniture and other features)   Enhance wildlife areas and review Backs Landscape Strategy to create a more holistic and wider consulted master plan  Encourage integrated management of the wider landscape and buildings.

Comments	Issues	Actions
		 Midsummer Common: resist inappropriate and over use of the common in order to maintain its integrity as a common and preserve use as grazing and flood plain.  Work closely with Friends of Cherry Hinton Brook on tree and scrub works  Jesus Green: resist inappropriate use in order to maintain its integrity as a protected open space  Plant trees towards the east side of Ditton Meadows to screen the edge of the developed area to enhance the backdrop to the river  Plant suitable willow species on the east bank just north of the A14 bridge
	 **Access**	
	 Commons and the river: heavy use of the towpath between Waterbeach and Cambridge by cyclists, largely commuters, detracting from the enjoyment for the more leisurely walkers  Plans to provide new bridges and bus and/or cycle routes across commons, particularly the threat to Stourbridge Common.	 Encourage extension of footpath from Grantchester Meadows to Byron's Pool (e.g. through HLS funding subject to availability)

Comments	Issues	Actions
	 Lighting along footpaths and cycle routes across green spaces; issues around need for better lighting along cycle routes/footpaths or not	
	 **Historic environment**	
	 Concern for the future of the Photographer's Hut at Grassy Corner.  Concern at the erosion of lock walls at Baits Bite Lock	 Enhance quality of setting at Byron's Pool.  Mr Hobson's summerhouse: restore and repair of summerhouse, wall and gate, and restore ladder into river.  Remove graffiti and encroaching brambles, and improve the setting of the old Water Gate in Peterhouse wall  Ensure the future of the Photographer's Hut is protected  Ensure that Baits Bite Lock is suitably maintained and protected from erosion
	 **Governance, promotion and funding**	
	 Negative media coverage; perception that some people who care about development and its effect on the river are branded as 'nimbys'.	 Encourage more positive promotion by river groups to the local press  Build better links with businesses and Colleges.  Make a World Rivers' Day River Festival a standing fixture on the list of City events. Form a steering group; make this a reality in late September 2015.

Comments	Issues	Actions
	Highways Issues	
	Noise from road traffic which detracts from the peacefulness and enjoyment of riverside spaces	
River Reach: Bourn and Bin Brooks		
	River Flows	
	Flooding: this is of particular concern on the Bin Brook and the Bourn Brook through Toft and Bourn.	Explore a means of delivering a re-evaluated Bin Brook flood alleviation project, potentially with a focus upon increasing channel roughness combined with the placement of shoals and riffles.
	Wildlife	
	Assess ease of fish passage	Consider if there is scope for retaining large amounts of large woody debris in the upper reaches so as to aid natural processes and slow the passage of water downstream, plus provide a greater degree of in-channel habitat Assess ease of fish passage. Consider what scope exists to create a more natural channel form (and if created would it directly improve the ecological status?) Survey the extent of non-native plants and consider suitable action to achieve eradication. 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. Undertake fish surveys. .Survey the brook for water voles and propose selective tree thinning to allow water vole population

Comments	Issues	Actions
		expansion
	Pollution	
	Identify main sources of water quality deterioration (i.e. are there storm drains that discharge to the river?)	
Lower Cam		
	Historic Environment	
		Protect the setting and remains of the historic Car Dyke near Waterbeach (e.g. from development on Waterbeach Barracks and the Cambridge Sports Lake). Protect the remnants of the ports in the fen edge villages from development or encroachment by scrub
	Landscape	
		Protect the open nature of landscape from development including new boat houses
	Recreation and river use (the formatting/style needs correcting here)	
	The large lake at Waterbeach Barracks could provide an interesting recreational resource.	Gain developer's support for young people's sailing facilities at Waterbeach Barracks

Comments	Issues	Actions
	Wildlife	
		 If studies indicate that a marina is needed, ensure that it is sited so that it does not harm important wildlife areas.