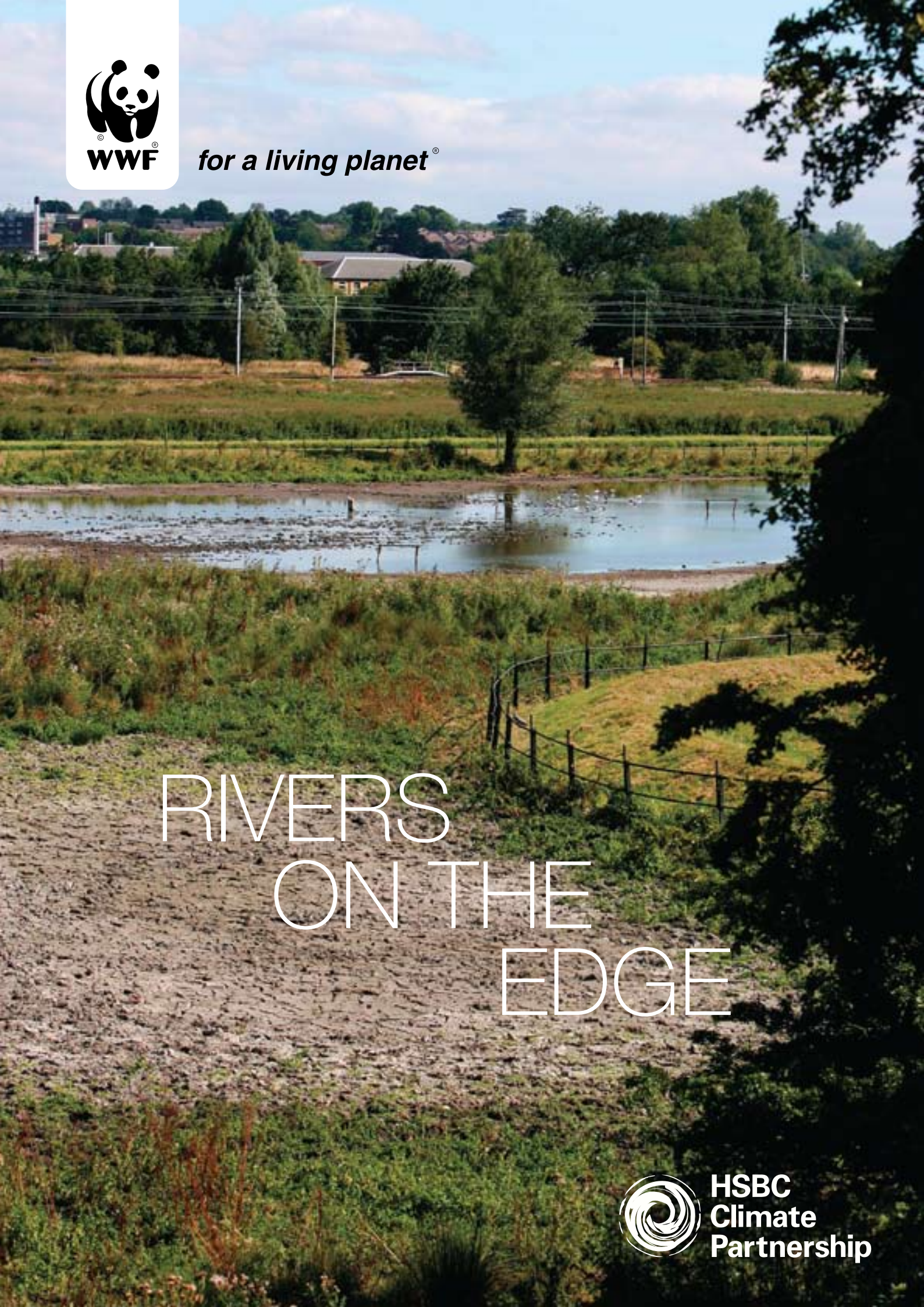
WWF
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RIVERS
ON THE
EDGE
HSBC
Climate
Partnership

On average, we each use 148 litres of water per day – that's 1 tonne per week

Contents

Safeguarding our most precious resource

Our rivers and streams are special places. Not only do they support our lifestyles – they are our water supply – but they support a thriving natural environment, and are places where we can get away from it all, relax and unwind. Yet our rivers are in danger: only 15% by length[1] are in a condition to support a healthy, vibrant ecosystem. 89% of people in the UK think that the Government should do more to protect our rivers[2].

WWF's *Rivers on the Edge* aims to restore rivers on the edge of ruin. Our rivers on the edge of, and running through our towns and cities, provide freshwater to thousands, take away our sewage and give us special places to enjoy. They are on the edge of a period of climate instability, looking to an uncertain future. They are on the edge of a necessary step-change in water management, which has until now been characterised by wasteful exploitation of a diminishing resource. They are on the edge of survival.

Chalk streams: a unique ecosystem, our unique heritage

Our rivers have helped shape some of the most beautiful landscapes in the world – from our rolling green downlands in southern England to the grassy meadows criss-crossed with waterways of the eastern Fens. And today our rivers are special places with their own niche ecosystems. *Rivers on the Edge* focuses the lens on the Kennet, the Upper Lee tributaries and the Itchen, three of England's iconic chalk streams. Why chalk streams? They are unique rivers, found only in England and some parts of northern France. Their fragile and beautiful systems host an abundance of native wildlife, that, if lost through our over-exploitation, will be lost to the world forever.

By acting now we can preserve our precious resource and the special places it gives us. If we fail, as we look towards a future of a changing climate and rising population, we are risking catastrophe.

Save water, save our rivers

The good news is that we can make a big difference just by saving water. One third of the water we take from our natural environment is wasted. By taking only what we need, we can meet the needs of our modern lifestyles and ensure that there is enough water for wildlife. Water efficiency has no downside. It benefits our rivers; the wider environment; consumers (through lower water and energy bills); and the water industry, which can reduce its reliance on expensive capital infrastructure.

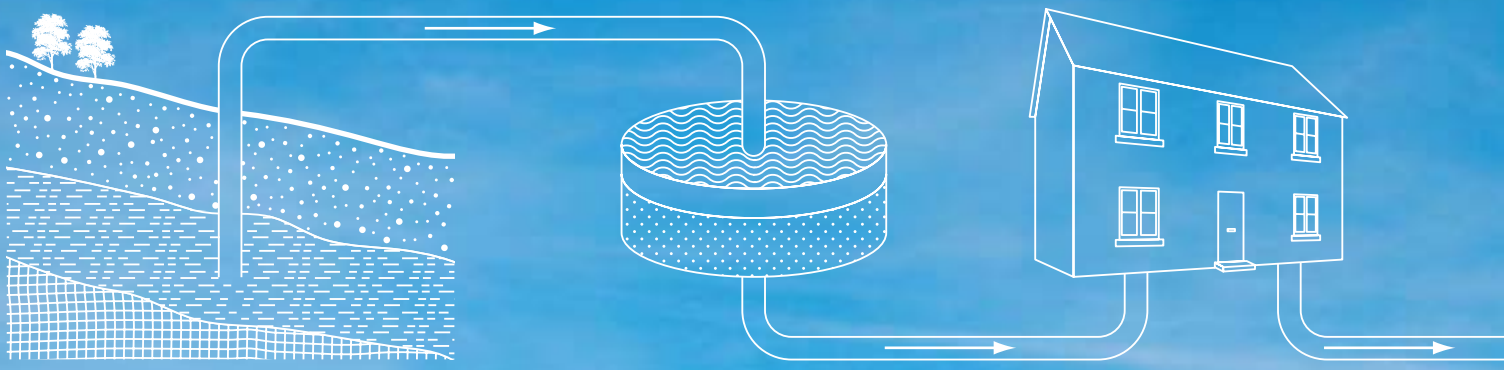
WWF's *Rivers on the Edge* will:

- Encourage **the public** to save water, by helping them to understand the impacts of water use, and by reconnecting them with nature.
- Urge **the Government and its regulators** to introduce incentives for the industry to meet Defra's *Future Water* target of 130 litres per person per day.
- Work with **the water industry** to introduce efficiency schemes, retrofit thousands of homes with water efficiency appliances, and improve water management.

Cover image: the river Mimram in Hertfordshire during August 2006. Left: the river Mimram at Tewin.

Rivers and us: the story of our water

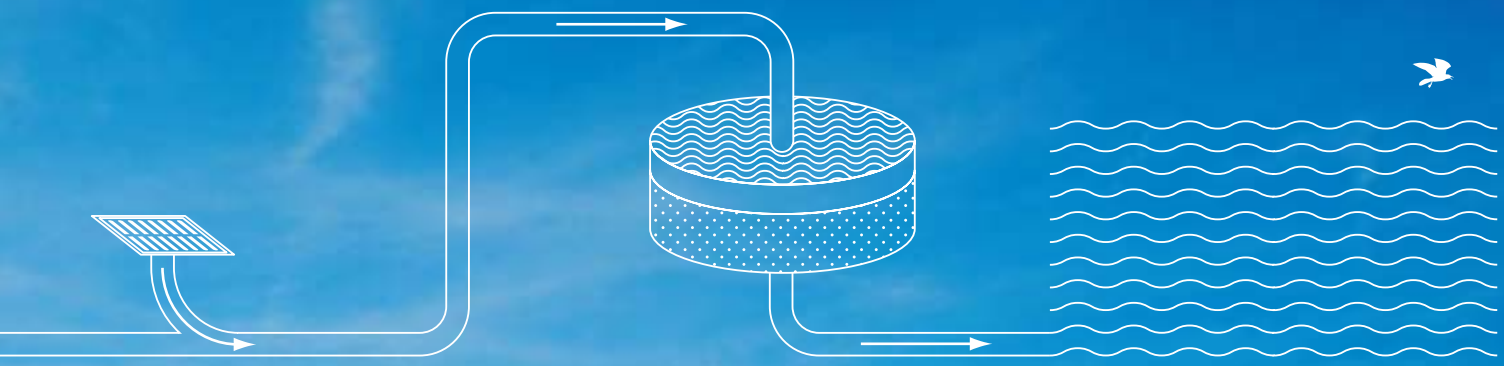
We depend on freshwater for our survival. All our water comes from the natural environment. When you turn on your tap, the water you see is part of a complex cycle: not only the familiar evaporation to collection cycle taught in classrooms across the country, but a pumping, filtering, treatment circuit less widely known.



1
Water is pumped from rivers or underground aquifers (that also supply the rivers) to be processed at a treatment works or stored in large reservoirs.

2
Water is screened and filtered to remove impurities, sediments and particulates, and cleaned to potable standard using a series of biological or chemical treatments.

3
Water is pumped to our homes, schools and businesses where we use it for drinking, cooking, washing and flushing, before it continues its journey down the plughole.



4

Waste water flows along our sewers and is joined by water washed off streets and houses and down the drains.

5

Water is pumped to another treatment works*, where it is again screened, filtered and biologically treated to reduce the organic content (which can be toxic to river ecosystems).

* In storm conditions, high volumes of water can mean that waste water is discharged directly unto rivers, without any type of treatment.

6

Water is discharged into the river and eventually goes out to sea, where it evaporates and falls as rain, recharging aquifers.

The cost of water

People tend to think of water as a free natural resource – it falls from the sky after all – but pumping and treatment do not come cheap. One per cent of the UK's total greenhouse gas emissions are attributed to pumping and treating water[3]. About 28% of the water we take is lost during pumping, transport and treatment[4]. So for every glass of water we fill from our taps we take 1.4 glasses from the natural environment. To reduce this waste Ofwat has introduced targets for water companies to reduce the amount of water lost until we have an 'economic level of leakage'. In 2007 leakage was 22%[3] (in 2007/08 all of the water companies met their leakage targets[5]).

How much?

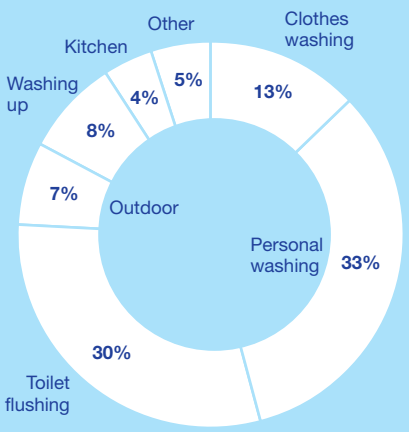
Every day each of us uses, on average, 148 litres of water[6]. This will come as a surprise to many since we rarely think much about water – it's just there: we are lucky enough to be able turn on a tap without a second thought. But those who do think more about it – people with water meters – generally use 10%-15% less than those who don't[7].

Making our homes water efficient

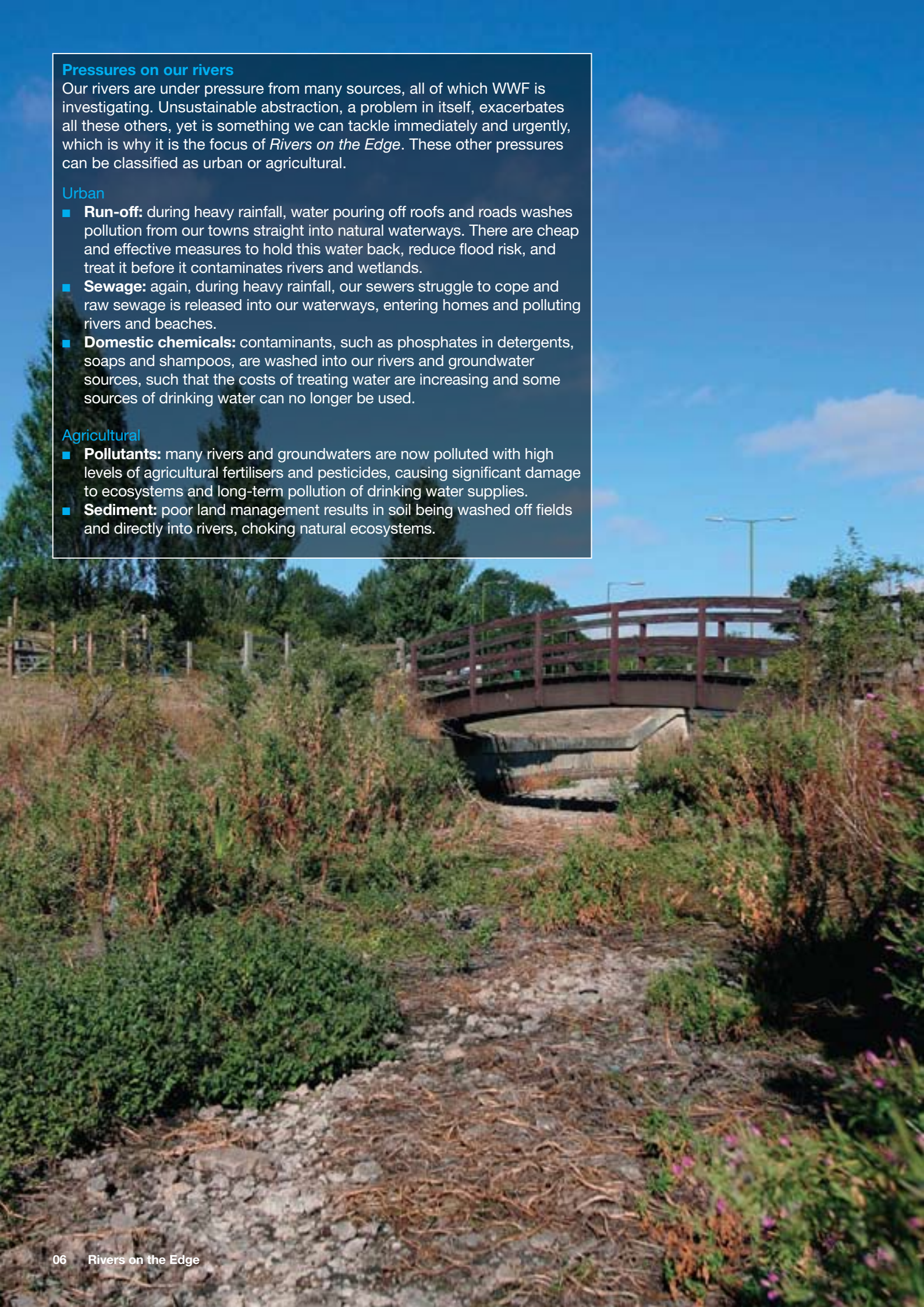
Many people find it hard to think how they can save yet more water – already 47% of us turn off the tap while brushing our teeth and 37% have a shower instead of a bath[8], which can help save water. But some of the biggest savings can be made without needing to change our behaviour at all. Fitting a dual flush toilet, for example, can save up to seven litres of water on every single flush[9], while an aerated shower head can save 75% of the water used by a traditional shower[10]. Both are high impact in terms of water saving but low impact on bathroom aesthetics. For those with green fingers, the installation of a rainwater collection butt for the garden can save up to five litres per person per day[11].

Our challenge is to help people understand why we need to save water and provide convenient ways for them to do so. It's perfectly possible, and not too difficult, to make every home – new or old – water efficient.

Average household water use by activity



5% of the UK's CO_2 emissions arise from heating water at home



Pressures on our rivers

Our rivers are under pressure from many sources, all of which WWF is investigating. Unsustainable abstraction, a problem in itself, exacerbates all these others, yet is something we can tackle immediately and urgently, which is why it is the focus of *Rivers on the Edge*. These other pressures can be classified as urban or agricultural.

Urban

- **Run-off:** during heavy rainfall, water pouring off roofs and roads washes pollution from our towns straight into natural waterways. There are cheap and effective measures to hold this water back, reduce flood risk, and treat it before it contaminates rivers and wetlands.
- **Sewage:** again, during heavy rainfall, our sewers struggle to cope and raw sewage is released into our waterways, entering homes and polluting rivers and beaches.
- **Domestic chemicals:** contaminants, such as phosphates in detergents, soaps and shampoos, are washed into our rivers and groundwater sources, such that the costs of treating water are increasing and some sources of drinking water can no longer be used.

Agricultural

- **Pollutants:** many rivers and groundwaters are now polluted with high levels of agricultural fertilisers and pesticides, causing significant damage to ecosystems and long-term pollution of drinking water supplies.
- **Sediment:** poor land management results in soil being washed off fields and directly into rivers, choking natural ecosystems.

Our rivers at risk

Our rivers and their ecosystems are at risk from a range of pressures, but the compounding effects of excessive abstraction are particularly severe. Pollutants become more concentrated. Rivers slow down and drop sediment. Habitats for fish, insects, animals and plants are reduced and severely altered. Excessive abstraction effectively magnifies any other negative impact on water quality, such as pollution from road run-off; sediment, fertilisers and other pollutants from agriculture; phosphates from sewage.

The scale of the problem

One third of our rivers are at risk of significant damage from over-abstraction. The Environment Agency's Catchment Abstraction Management Strategies (CAMS) show that there is considerable pressure on water resources right across England and Wales. 15% of river catchments are classed as *over-abstracted* (existing abstraction causing unacceptable damage to the environment at low flows) and 18% as *over-licensed* (current actual abstraction is such that there is no water available at low flows; a licence used to full allocation would cause unacceptable damage at low flows)[12].

There is particular water stress in the south and east of England, where population density and per capita consumption are highest (see map). Abstraction to meet current demand is already affecting nature's ability to endure drought and low rainfall conditions – our rivers are abstracted to a level that is actively causing damage to the natural environment.

A legal issue

If the UK does not address unsustainable abstraction we will be at risk of failing to meet our legal obligations laid down in the EU Habitats Directive and the Water Framework Directive[13]. We are also at risk of failing to meet the Government's own targets (e.g. Public Service Agreement (PSA) and UK Biodiversity Action Plan (BAP) targets).

An environmental issue

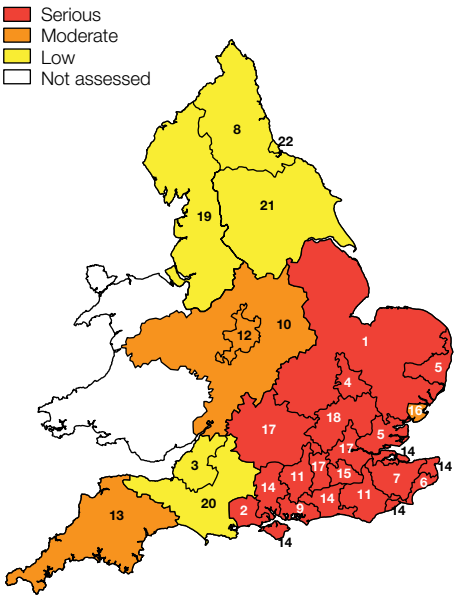
Rivers are extremely complex systems. If it is difficult precisely to pinpoint cause and effect relative to stresses and impact, it is vital to set abstraction levels using the precautionary principle: if we wait to take action until we have evidence beyond all reasonable doubt, there is a risk that it will be too late, that the damage will already be too great and possibly beyond redemption.

Over-abstraction of water can decrease the resilience of habitats to natural variations in water levels, particularly during summer or a drought. Over-abstraction can result in:

- a reduction in habitat (the river shrinks and headwaters dry up and retreat);
- restricted migration routes and restricted access to spawning grounds;
- increased deposition of sediments from sewage and agricultural run-off;
- increased water temperature (which can lead to algal growth and oxygen depletion);
- increased concentrations of effluent, pollutants and nutrients; and
- decreased viability of species that rely on specific water levels, flow levels and substrate conditions.

A significant reduction of the level of water in rivers can, in some circumstances, irreversibly damage the ecosystems these rivers support.

Levels of water stress



1 Anglian Water
2 Bournemouth & West Hampshire Water
3 Bristol Water
4 Cambridge Water
5 Essex & Suffolk Water
6 Folkestone & Dover Water
7 Mid Kent Water
8 Northumbrian Water
9 Portsmouth Water
10 Severn Trent Water
11 South East Water
12 South Staffordshire Water
13 South West Water
14 Southern Water
15 Sutton & East Surrey Water
16 Tendring Hundred Water
17 Thames Water
18 Three Valleys Water
19 United Utilities
20 Wessex Water
21 Yorkshire Water
22 Anglian Water (formerly Hartlepool Water)

Source: Environment Agency

Left: the river Mimram in Hertfordshire during August 2006.

A social issue

Low flows or dry rivers also mean a less enjoyable environment for us. Imagine no fishing or boating, no leisurely Sunday walks along the river bank. This is a very real possibility if we do not act now to protect our rivers.

A bleaker outlook for water

Right now our rivers are on the edge of ruin. But the pressures they are under will only increase in the years ahead. The future is uncertain but the main risks to our already stressed water resource are increasing demand, as our population grows and our lifestyles change, and decreasing supply, as climate change affects rainfall and river flows.

Increasing demand: a growing and changing population

The Government forecasts population growth of six million in England and Wales by 2021[14], with the associated increasing demand for food, goods and services. But there will be changes beyond increasing numbers that are likely to increase demand for water: there will be more one- and two-person households; more goods and appliances to aid the modern lifestyle; there will be higher density housing; and changing agricultural practices. Taken together, all this could mean greater demands for water.

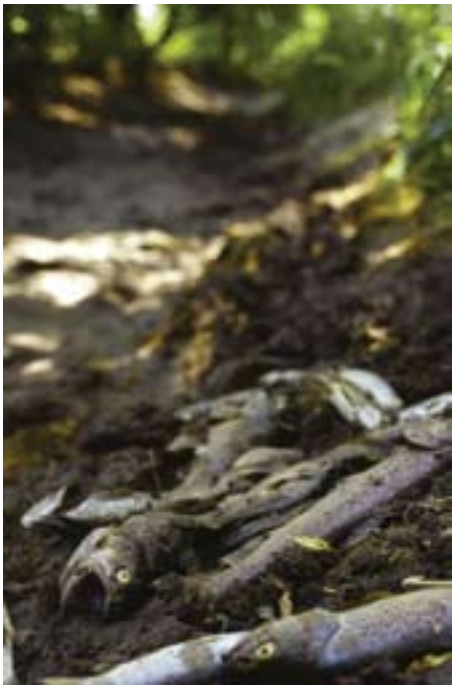
Business-as-usual forecasts (i.e. based on a continuation of existing and planned policy and technology) show that total demand for water is likely to rise steadily, and by 2020 demand could be around 5% (800 million litres of water per day) higher than it is today[15].

Decreasing supply: the threat of climate change

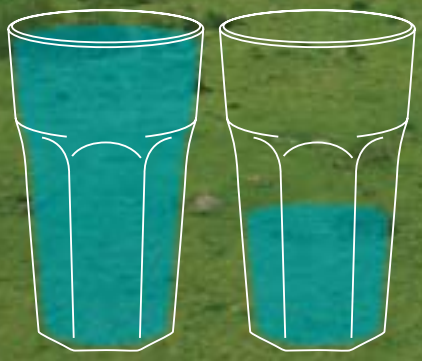
Climate-change scenarios for 2050 suggest warmer, wetter winters and warmer, dryer summers with more extreme and frequent drought and flood events[16]. River flows in late summer and early autumn may reduce by as much as 80%, with a 15% reduction in total annual average flow. This is likely to be accompanied by a decrease in water returning to aquifers and a general lowering in ground water levels. Although the climate change models are uncertain, we cannot afford to wait: we must act now to prepare for an uncertain future.

An opportunity we must not pass up

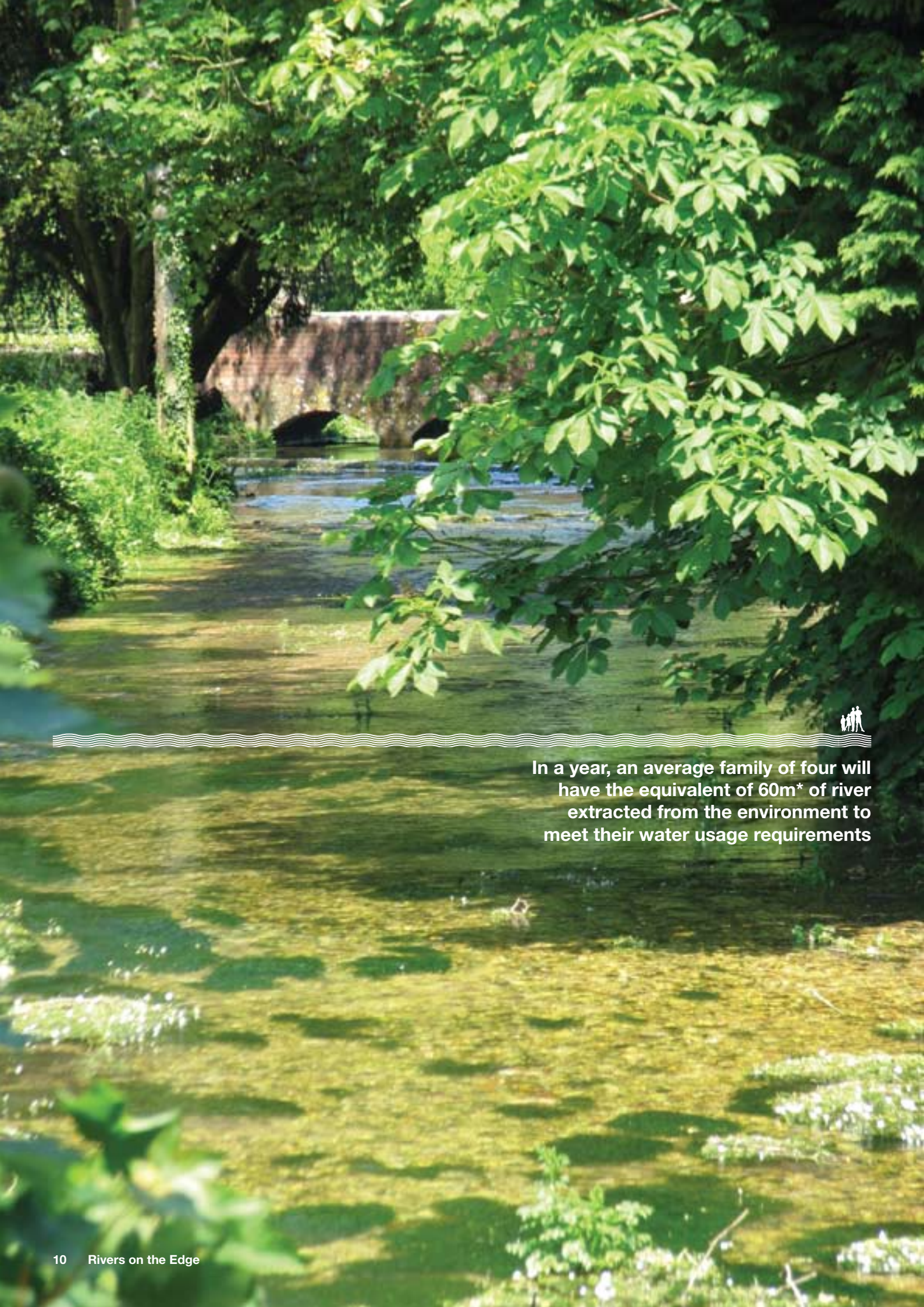
Abstraction is already affecting nature's ability to endure drought and low rainfall conditions. Our current demand for water is actively causing damage to the natural environment. But there is huge opportunity for improvement if we take action now. Environment Agency scenarios for 2050 show that water demand could vary from 15% less than today to 35% more, depending on Government action, social mindsets and lifestyle choice[17]. We can't afford not to act.



Above: dead trout line the bed of a dry chalk stream – an abstracted river that vanished overnight.



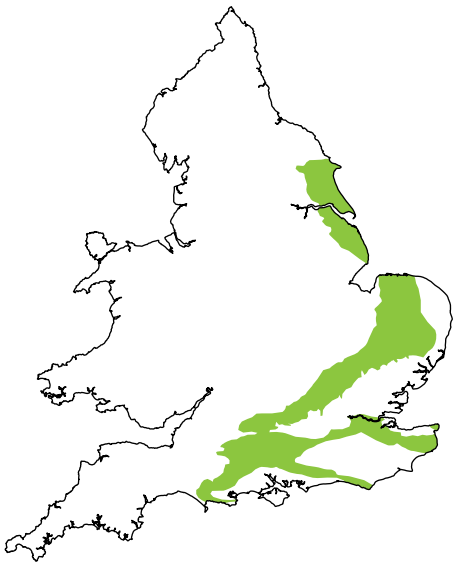
For every glass of water we use in our homes and businesses, we need to take 1.4 glasses from the natural environment



In a year, an average family of four will have the equivalent of 60m* of river extracted from the environment to meet their water usage requirements

England's iconic chalk streams

Location of chalk: the source of the chalk stream



***Rivers on the Edge* focuses the lens on the Kennet, the Upper Lee tributaries and the Itchen, three of England's iconic chalk streams – fragile and beautiful systems that are unique to this country and host an abundance of native wildlife – that, if lost through our over-exploitation, will be lost to the world forever.**

Chalk: the ideal water course and a unique ecosystem

The mechanics of a chalk stream are at the heart of these diverse eco-systems. The richness of their habitat is entirely dependent on the chalk aquifers from which they rise – and chalk streams are found nowhere in the world except the south and east of England and pockets of northern France.

The underground journey of water from rain to river is the key to what shapes a chalk stream. Rainwater dissolves chalk and so becomes alkaline and rich in nutrients. It is cooled by its journey through the chalk, and springs from the ground at a constant temperature whether summer or winter. Under natural circumstances, chalk aquifers buffer the impacts of flood and drought so that chalk stream flows are constant and equable.

Perfect conditions for wildlife

These fertile flows creates perfect conditions for thriving wildlife. These lush rivers provide a gentle habitat in which everything grows to abundance – insects, water plants, fish, crayfish, birds and mammals like the water vole and the otter (Kenneth Grahame's *The Wind in the Willows* was, after all, written beside a chalk stream).

Tipping the balance of people and nature

Chalk streams are truly rivers on the edge because throughout time we have depended upon and shaped them. Originally, chalk streams would have flowed through wetlands dense with wild wood, braided into countless channels. Today, there are few reaches of any chalk river left in this wild wood state.

Man first started harnessing the abundance of the chalk streams over 2,000 years ago, clearing woodland from their banks. Since Roman times, the river channels have been progressively modified for navigation, transport, agriculture, landscaping and milling. There are mills or the vestiges of mills on nearly every chalk stream in England. Perhaps most distinctive of all was the creation of water meadows, which, between the seventeenth and nineteenth centuries, shaped these rivers into a patchwork of channels, sluices and hatchways to carry water to flood the ground: the flooding was intended to protect grazing meadows from frost and to fertilise the ground with sediment.

In the twentieth century a sprawling suburbia demanded more and more water from the chalk aquifers. Drilling technology improved and boreholes were sunk deep into the ground.

The effects of abstraction have spread outwards as the heavily populated south and south east of England demand more water. Today there is barely a chalk stream left that does not feel its impact. In some cases that impact is deadly. When water was clean and abundant the ecology of chalk streams was well able to cope with shaping and harnessing by man. When once our small chalk streams would have survived a drought, today the same conditions can finish them off. For centuries then, we had a delicate balance – people living in harmony with nature – but today, if we do not act, that balance will tilt at the expense of our precious and unique chalk streams.

Rivers on the Edge in action

By focusing on three of our precious and most threatened chalk streams, the Kennet, the Upper Lee tributaries and the Itchen, we aim to reconnect people with nature and help them understand the value of, and links between, the water from their taps and the health of their local rivers. *Rivers on the Edge* will take a 'river's eye view' of our water policies and practices to understand current and future impacts, barriers and solutions.

But we mustn't forget that these are just three examples of a much wider problem: our rivers are in danger and we hope that by highlighting these three, we can encourage the people of the UK to recognise and deal with the issue before it's too late.

Left: the river Meon at Warnford.

*for a river 5m wide with average depth of 1m.

The Kennet

The River Kennet springs from the chalk of the North Wessex Downs and flows through the rolling Wiltshire countryside before meeting the Thames at Reading. It is the major tributary of the Thames, accounting for over half its flow in summer months. The upper Kennet is a wonderful example of an English chalk stream: the stretch between Marlborough and Woolhampton is designated a Site of Special Scientific Interest because of its important ecology.

Man has made his mark on the river since ancient times: the prehistoric sites of Silbury Hill and Avebury stone circles lie in the upper reaches; in the seventeenth and eighteenth centuries the river supported extensive milling, brewing and tanning industries. Today the river is enjoyed by anglers and flows through stately English countryside, an amenity for walkers and nature lovers. But we also depend on it for our water supply.

Existing pressures on the river

The Kennet shows signs of this extensive shaping by man: stretches of the riverbed are too wide for the flow, its raised banks remnants of past dredging and land drainage schemes. The upper Kennet suffers from low summer flows; high nutrient levels, which can cause algal blooms; and high loads of suspended sediments associated with local farming, sewage effluent outfall and other diffuse sources of pollution. All this is exacerbated by over-abstraction.

Above: ephemera danica, the mayfly, an important fly on English chalk streams.

Right: the River Kennet in Wiltshire during June 2008.

The town of Swindon, over the downs to the north west, relies on the Kennet to supply water to as many as 30,000 homes. This abstraction can be especially damaging as the water is taken from the sensitive upper reaches and, since it is not returned to the catchment as treated sewage, it represents a net loss of water. The impact of abstraction has become more apparent as it has increased over the 20th century. The Og, a Kennet tributary, is remembered by older parishioners as a stream they swam in. Now, in Ogborne St George, you can walk on the bed of the stream without even getting your feet wet.

Future pressures

WWF's *Thames Vulnerability Assessment*[18] published in 2008 showed the potential impacts of climate change on the Kennet. For 44% of the time, river flows are likely to fall below levels needed to sustain the ecology (they currently fall below these levels 26% of the time); low flows are set to get even lower. Meanwhile, population forecasts suggest that water demand in the Swindon area will increase.

Reductions in abstraction must be implemented

Abstraction is having an impact on the Kennet, resulting in reduced river flows which are affecting its sensitive ecology. Groundwater levels have fallen over the years as abstraction has increased. Moreover, as climate change models predict lower flows in the future, the impact of abstraction is set to become more severe.

The main focus has been the abstraction at Axford, which accounts for 50% of all abstraction on the upper Kennet[19]. There have been two recent licence variations, an increase in 1998 and a reduction in 2008, and the Environment Agency has called for additional 'hands-off flow' reduction, i.e. a cessation of abstraction when flows fall below a significant level, by 2014[20].

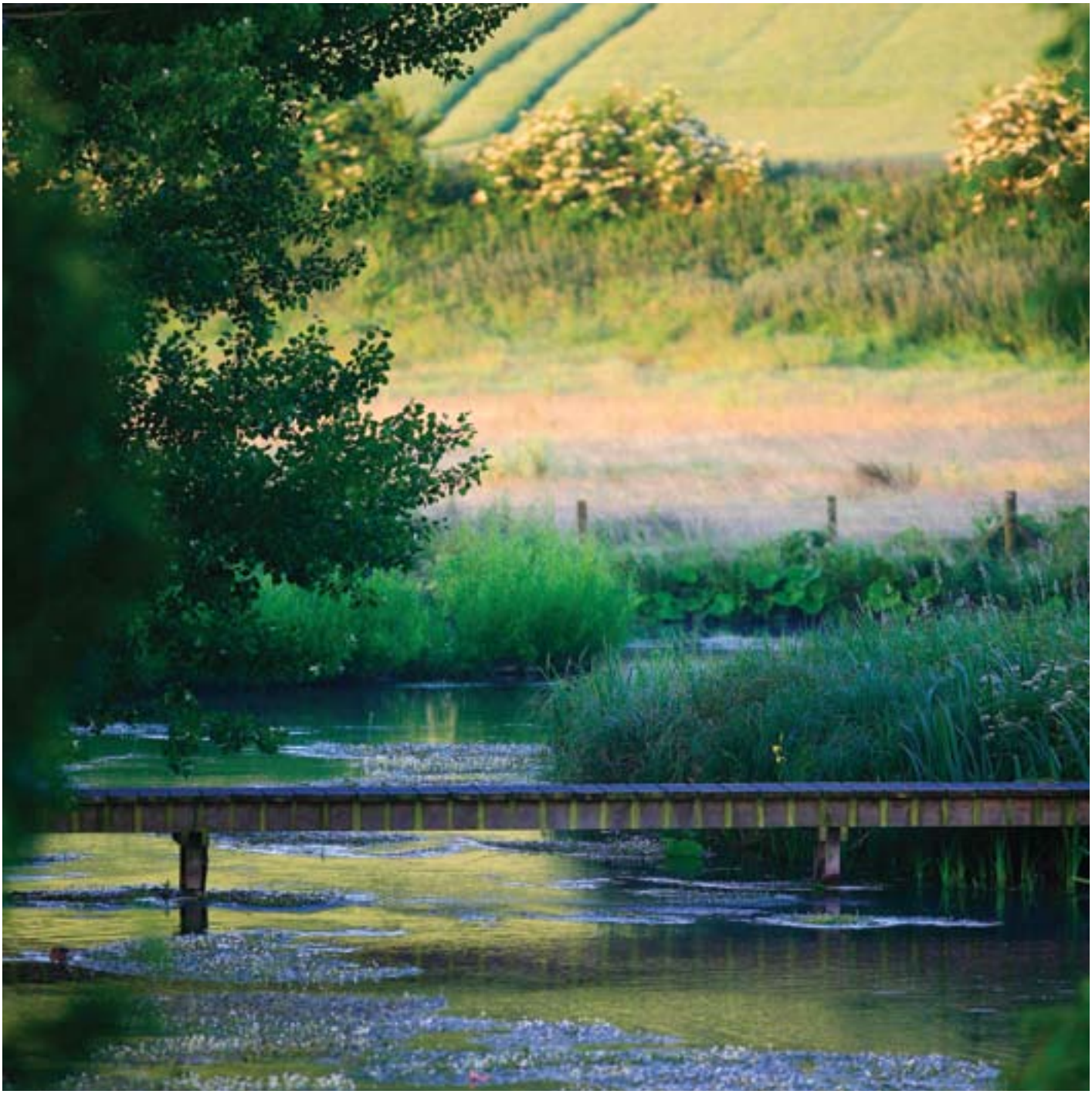
In addition to the planned Axford reductions, investigations are underway to assess the current impact of abstraction on the more sensitive upper reaches of the Og. Reduction in current abstraction is needed now to protect the river. Further reductions are likely to be needed in future.

Average daily abstraction for public supply:
19 million litres per day

CAMS designation:
'over-abstracted'[21]

Water Framework Directive:
'Moderate ecological status', anticipating 'Moderate' by 2015, with quantity and dynamics of flow a limiting factor[22]

Key species at risk:
water crowfoot, water vole, reed bunting, brown trout, brook lamprey



***Rivers on the Edge* will:**

- **Work with local groups** to ensure implementation of the Water Framework Directive.
- **Work with water companies** to ensure that water efficiency is part of the solution to a sustainable reduction in abstraction.
- **Compile a body of evidence** for the water industry, in conjunction with water companies and universities, which demonstrates the impacts of water efficiency.

The Upper Lee tributaries

The Upper Lee and its chalk stream tributaries, the Mimram, Beane, Ash, Rib and upper Stort, flow through Hertfordshire and Bedfordshire. The surrounding area is predominantly rural, but these rivers flow through some urban areas too, such as Luton. Across the Upper Lee catchment there are 14 Sites of Special Scientific Interest designated in relation to the water environment. The Lee Valley Special Protection Area falls partly in the catchment. The tributaries still support populations of wild trout in places.

Existing pressures on the river

The Lee has been a key source of London's water for centuries. In the early seventeenth century, a conduit of drinking water – the 'New River' – for a burgeoning London was constructed to flow from the springs of the Lee into the middle of the City. Today, the Upper Lee and its tributaries provide water to the surrounding towns of Luton, Stevenage, Welwyn Garden City and Hertford (with 200 licensed abstractions). The dwindling flows are supplemented by outfall from sewage works, which, during low flows, can make up the bulk of the water in the main river. Some of these rivers such as the Mimram and the Beane now dry out completely. Extensive channel modification, urbanisation, and pollution from roads and farmland are all affecting the biological quality of the river.

Future pressures

WWF's *Thames Vulnerability Assessment*[23] predicted up to a 10% increase in water demand on the Upper Lee, due to changes in population and consumption. Increasing development in the Lower Lee will put extra pressure on water quality, whilst increases in abstraction will concentrate pollutants entering the river. Climate change scenarios predict that natural flows (i.e. without considering abstractions/ discharges) may not support the ecology 44% of the time.

Reductions in abstraction must be implemented

Over abstraction is having a significant impact on the Upper Lee. The Environment Agency's CAMS has found that over-abstraction is having a damaging impact on the environment not at only at low flows but also at high flows. Over 90% of abstraction is for public water supplies[24], which means that improving water efficiency offers a significant opportunity to reduce abstraction.

Above: The river Mimram.

Right: growing watercress – an artesian well draws from the aquifer 200m deep.

Average daily abstraction for public supply:
409 million litres per day[25]

CAMS designation:
'over-abstracted'[26]

Water Framework Directive:
'bad' ecological status, anticipating 'not good' by 2015, with quantity and dynamics of flow a limiting factor[27]

Key species at risk:
otter, water vole, gadwall, shoveller, bittern, brown trout, brook lamprey, water crowfoot

***Rivers on the Edge* will:**

- **Support local groups** and the Environment Agency to restore sustainable abstraction.
- **Work with water companies** to ensure that water efficiency is part of the solution to a reduction in abstraction.

The Itchen

The River Itchen is perhaps the most iconic chalk stream in the world. It springs from the chalk downs at Alresford near Winchester and winds its way south to the Solent at Southampton. In its upper reaches the Itchen remains one of our most unspoilt chalk streams.

Existing pressures on the river

Even here, man-made pressures are taking their toll. The Itchen supplies half a million people living in the towns and cities that have grown up on its banks: Winchester, Eastleigh and Southampton and the surrounding areas. The Itchen is home to England's watercress industry, drawing on waters to grow beds of watercress. Fish farms abstract the same chalk water to grow trout for the UK's restaurants and supermarkets and to stock stretches of the river for anglers. The upper Itchen valley is prime farmland and both arable and livestock farming affect the river.

Future pressures

The South Hampshire region, in which the Itchen basin sits, is earmarked for substantial housing growth: current forecasts anticipate an additional 80,000 thousand houses by 2026[28]. Increased housing and population will lead to greater demands for water and will therefore have associated impacts on the river. Estimates for the 2050s suggest demand will increase by 47 million litres per day, while, due to the impacts of climate change, flows in summer will reduce by 47 million litres per day[29].

Reductions in abstraction must be implemented

The Itchen is designated a Special Area of Conservation (SAC) under the EU Habitats Directive by virtue of the international significance of its chalk stream ecology. As such, the Environment Agency is required to and has carried out a review of abstraction licences. It has recommended modifications to four public water supply licences to limit the volume of water that can be taken during summer months, as well as a 'hands-off flow' which imposes a cessation of all abstraction when the river flow drops to 198 million litres per day[30]. The *River Itchen Sustainability Study* cited a minimum flow level of 270 million litres per day to ensure upstream salmon migration[31].

During 'hands-off flow' periods, water companies will be in deficit and will have to find other sources of supply. However, while 'hands-off flow' conditions offer a level of protection during summer months, they allow higher levels of abstraction during winter because of higher seasonal rainfall, which could hinder recharge of the aquifer. Ultimately this may also affect water levels in the river.

The proposed reductions in abstraction will only go some way to reducing the current impact of abstraction. Further reductions will be needed in future.

Above: a wild brown trout sheltering in the weeds on the upper Itchen. Weed growth in chalk streams is threatened by low flows.

Right: The Itchen Stoke Mill. Mills are an intrinsic part of the chalk stream landscape and have shaped these rivers over centuries.

The River Meon

The river Meon could be thought of as the Itchen's 'Cinderella' sister. The river also springs from the chalk of the South Downs, just east of the Itchen, and, if it was once a beautiful and fecund chalk stream, the Meon is now a shadow of its former self. Neither a Special Area of Conservation nor a Site of Special Scientific Interest, this 'over-abstracted' river[35] is not protected like its more celebrated sister, the Itchen. If licences were taken to their full amount, up to 70% of its flow could be abstracted, causing significant environmental damage. *Rivers on the Edge* will work to protect, compare and contrast progress on both rivers.

Average daily abstraction for public supply:
120 million litres per day[32]

CAMS designation:
'over-abstracted'[33]

Water Framework Directive:
'poor' ecological status, anticipating 'poor' by 2015, with quantity and dynamics of flow a limiting factor[34]

Key species at risk:
water crowfoot, southern damselfly, native crayfish, otter, salmon, bullhead, brook lamprey, brown trout, water vole

***Rivers on the Edge* will:**

- **Independently review** the evidence of ecological impacts of abstraction.
- **Work with water companies** to ensure that water efficiency is part of the solution to a sustainable reduction in abstraction.
- **Work with local stakeholders** to ensure that any new housing in the region does not add additional pressure to water resources.

What needs to be done: waste less water

The simple message is that we must waste less water if we are to save our precious freshwater environment and make sure it is resilient to the impacts of climate change. But how? *Rivers on the Edge* aims to help thousands of homes, schools and businesses cut water use, saving millions of litres of water for our rivers. We call on Government and regulators in England and Wales to meet the targets below in the next two years to ensure that we stop using water wastefully; that abstraction does not unacceptably damage our rivers now and in the future; that we adapt to the potential impacts of climate change; and that we protect the future security of our water supplies.

1
Develop water-efficient housing fit for the future

- **Commit to making every home water efficient,** linking water efficiency with energy efficiency retrofit schemes.
- **Create green jobs in the water and energy sectors** to implement large-scale efficiency retrofitting schemes as part of a green 'new deal'.
- **Encourage partnerships to deliver water efficiency schemes** between local authorities, social housing providers, water and energy companies and other stakeholders so as to ensure cost effectiveness and give a consistent message about modern, sustainable lifestyles.
- **Make every new home water neutral,** by building them to the highest standards and ensuring that there is no net increase in water consumption by making existing buildings – schools, hospitals and businesses – more water efficient.

2
Provide strong incentives to promote water efficiency

- **Require a water meter in every home by 2020** with a pricing structure that provides an incentive to be water efficient, without penalising vulnerable households.
- **Regulate to create incentives to reduce demand,** so water companies can give equal importance to demand reduction and supply infrastructure. Remove the UK accounting requirement for water companies to treat all water-efficiency schemes as operational expenditure.
- **Promote adaptation to climate change** by placing a statutory duty on Ofwat to allow, oversee and encourage mitigation and adaptation solutions.
- **Steer the market towards water-efficient products:** create a fund that makes Government lead the way by ensuring that all public buildings are water efficient.

3
End damaging abstraction

- **Increase abstraction prices significantly in areas of scarcity,** to encourage water companies and other water users to reduce damaging abstraction.
- **Deliver the requirements of the Water Framework Directive** by identifying funding for and developing a programme to end damaging abstraction, and base identification on the precautionary principle. This delivery should include monitoring and research and a review of the Environment Agency's Restoring Sustainable Abstraction programme and Catchment Abstraction Management Strategies.

Right: simple steps to save water, such as using a water butt and watering can in the garden, can help make a big difference.

We call on Government, regulators and the water industry to reduce water consumption to 130 litres per person per day – that's a reduction of just 12.5%.

This could help save the average family £200 per year in energy bills alone and help to protect our natural environment.

Our partners

Rivers on the Edge will be delivered by WWF-UK working in partnership with Waterwise and with local and national organisations. We would like to acknowledge input and assistance from:

Action for the River Kennet

Artesia Consulting

Beane Restoration Society

Friends of the Mimram

Hampshire and Isle of Wight Wildlife Trust

Charles Rangeley-Wilson

Professor Rob Wilby, Loughborough University

Glossary

Catchment Abstraction Management Strategies (CAMs)
Catchment Abstraction Management Strategies are drawn up periodically by the Environment Agency for rivers across the country. They identify the amount of water remaining available for abstraction, and those cases where abstraction needs to be reduced.

EU Habitats Directive
A European Directive of 1992 that safeguards the most precious natural environments across Europe.

Kilowatt hour (kWh)
Energy delivered by utilities is usually expressed and charged for in kilowatt hours. It is the product of power in kilowatts multiplied by time in hours, not kilowatts per hour.

Megalitre (Ml)
1 megalitre equals 1,000,000 litres.

PSA
PSAs set out the Government's priorities for the next spending period (2008-2011). They include performance indicators and targets to measure progress and drive delivery across Government departments.

River Basin Management Plans
River Basin Management Plans need to be produced every six years by the Environment Agency, setting out how they will achieve the objectives of the Water Framework Directive. A Plan is produced for each of the 11 river basin districts in England and Wales.

Special Area of Conservation (SAC)
SACs are areas which have been given special protection under the European Union's Habitats Directive. They provide increased protection to a variety of wild animals, plants and habitats and are a vital part of global efforts to conserve the world's biodiversity.

UK Biodiversity Action Plan
The Government's response to the 1992 Convention on Biological Diversity, an international treaty designed to sustain the rich diversity of life on earth. The UK BAP described the UK's biological resources and commits to a detailed plan for their protection.

Water Framework Directive
The most significant piece of European water legislation yet passed. Requires EU governments to introduce measures to ensure that water bodies across Europe achieve 'good ecological status'. The first implementation plans will be published in December 2009.

Published May 2009 by WWF-UK.

Photography
Jiri Rezac/WWF-UK:
front cover, pages 2/3, 6, 13, 14, back cover.
Charles Rangeley-Wilson:
inside front cover, pages 9, 10, 12, 15, 16, 17.
Benjamin Ealovega/WWF-UK: page 19.
Elliott Neep/FLPA RM: page 4
©NTPL/Phil Ripley: page 21

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Right: the river Itchen flowing through Winchester City Mill.

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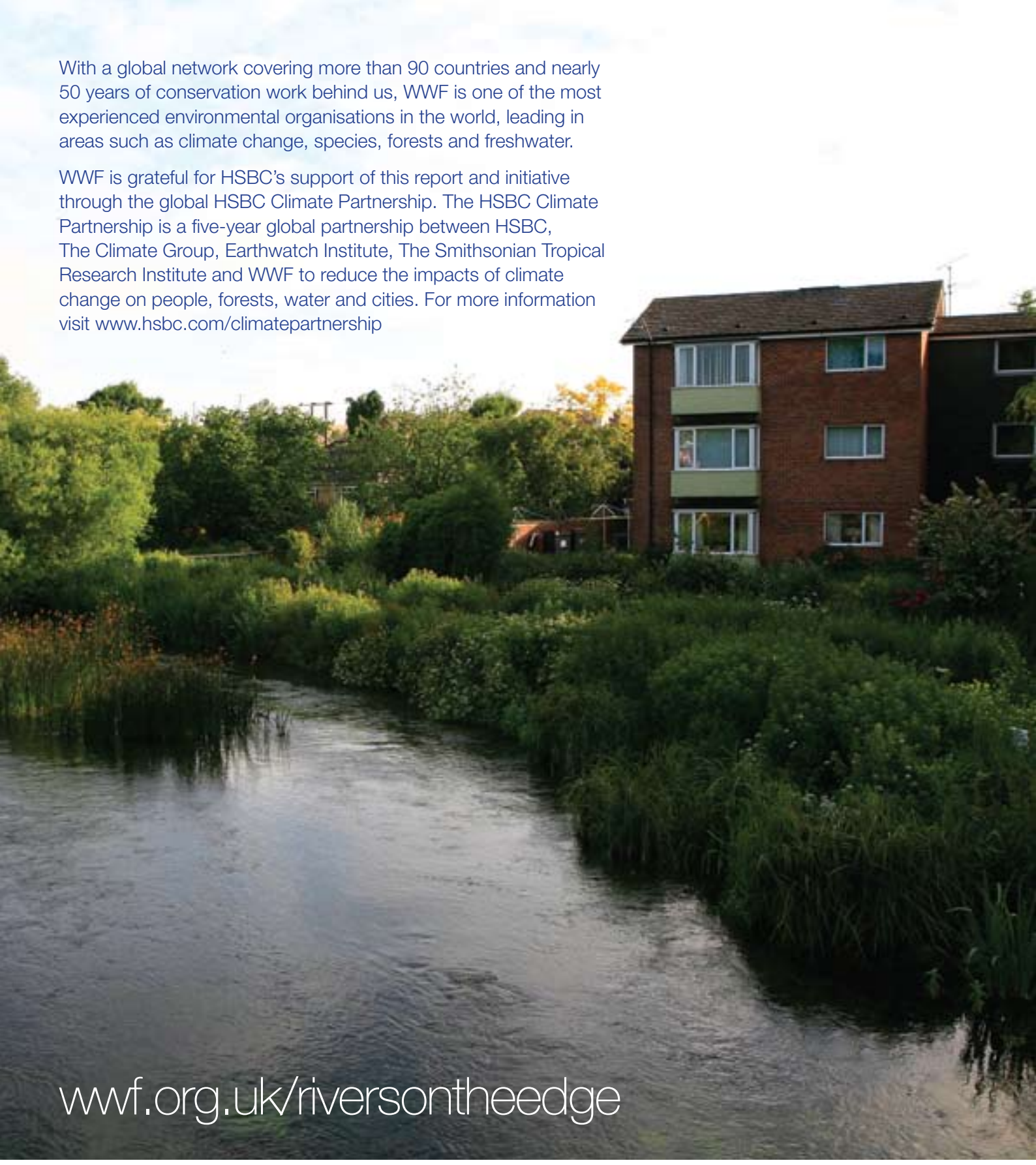
79% of people are worried about changes to the UK countryside and loss of our plants and animals

With a global network covering more than 90 countries and nearly 50 years of conservation work behind us, WWF is one of the most experienced environmental organisations in the world, leading in areas such as climate change, species, forests and freshwater.

WWF is grateful for HSBC's support of this report and initiative through the global HSBC Climate Partnership. The HSBC Climate Partnership is a five-year global partnership between HSBC, The Climate Group, Earthwatch Institute, The Smithsonian Tropical Research Institute and WWF to reduce the impacts of climate change on people, forests, water and cities. For more information visit www.hsbc.com/climatepartnership



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