



Introduction

We all depend on healthy ecosystems in our daily lives; to clean the air we breathe, generate drinking water, provide us with food and pollinate our crops, cycle nutrients and decompose waste, provide opportunities for recreation, learning, aesthetic, spiritual inspiration, sequester carbon for climate regulation, pest and disease control and more. We regard all this as ecosystem services.

Tingle's Way

- Takes us on a journey of discovery, making the invisible visible.
- Helps us discover how natural ecosystems are our life support system, delivering essential services for free.
- Increases awareness of how our demands are seriously threatening the capacity of natural ecosystems to support us.
- Aims to inspire and empower us to share in actions that are helping to make our relationship more sustainable.

Tingle's Way is about sharing, interdependence, sustainability, nurturing, enhancing our wellbeing!

Tingle's Way is a tribute to Colin Tingle who played a key role in heightening our awareness of how our lives are intertwined with all of life and living systems and especially how ecosystem services benefit our economy and society. He achieved this through workshops and guided Naturegain walks he lead in person as part of L&OVe (Lewes and Ouse Valley Eco-nomics). Tingle's Way is a natural progression from Colin's work inspiring us and offering us the opportunity to strengthen our connections for a more sustainable future.

Many people are helping to make Tingle's Way and it is already evolving! New branches, circuits and tangents will develop with themed stories. Join the trail where you want – there is no end point!



Get involved: tinglesway@gmail.com

Colin Tingle, 1959 – 2017



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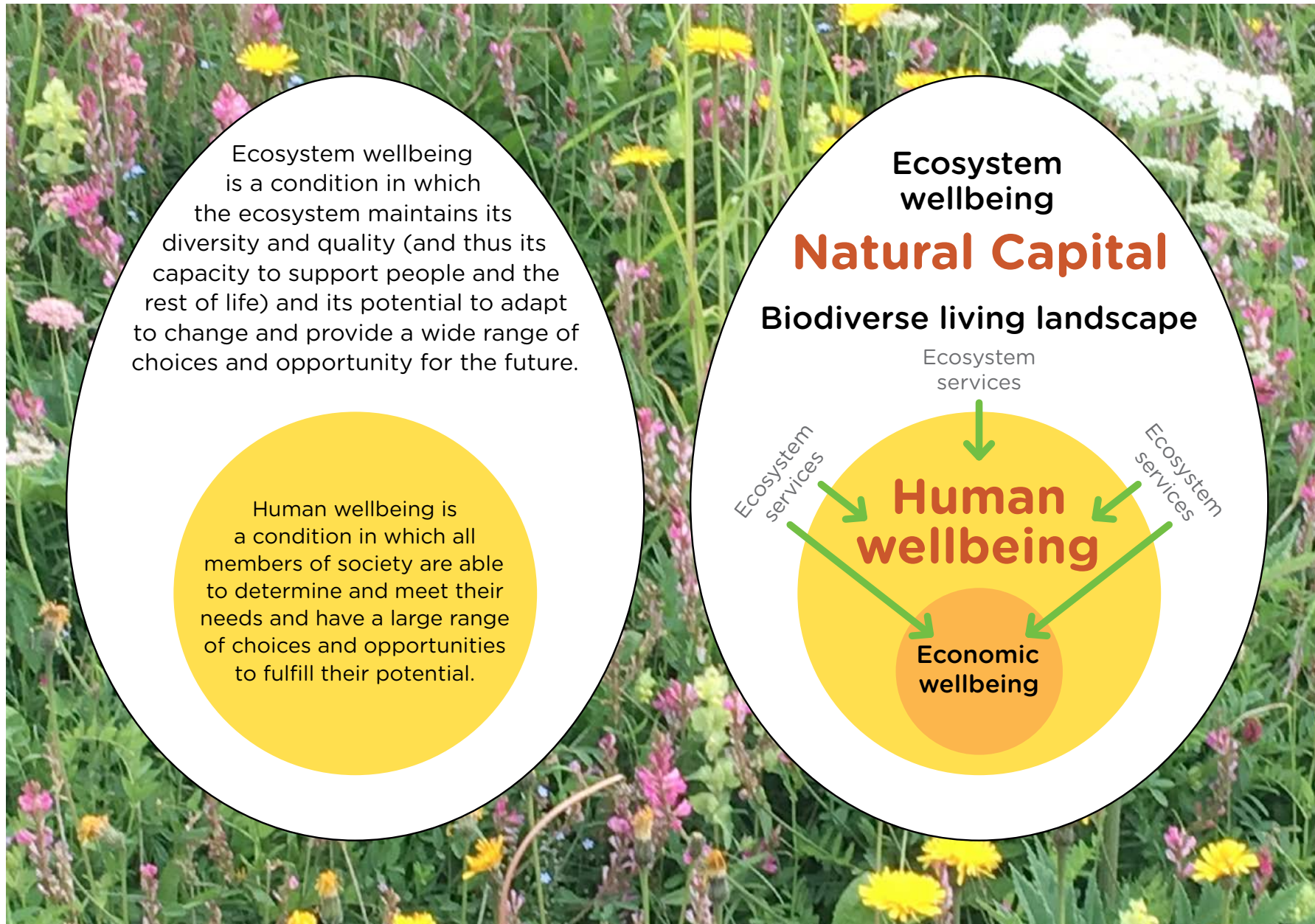
Pollination



Trees



the egg of wellbeing



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"Economic wellbeing is nested in human wellbeing and both are fed by healthy natural ecosystems"

Colin Tingle





waterflow

Water – the elixir of life

We are lucky to have the chalk downland supply 70% of our drinking water in Sussex. We all rely upon this supply and for some businesses such as Harveys, the quality of water is of paramount importance.

Water, water everywhere flowing in different ways

Water cycles forever. It is possible that you have drunk the same water that a dinosaur once sipped! Water based ecosystems are around us in lots of forms and are interconnected.

As well as the river, you can find springs, a knucker hole, marshes, water meadows and dry valleys under which water still flows. Lewes arose due to water because it is situated at a gap in the downs created by the River Ouse. It was a good place to cross the river and the highest navigable point, all these features facilitating transport. You can also find water features we create for our benefit, including dew ponds and rain gardens.

Floods

Lewes is susceptible to flooding in part because the River Ouse encounters a bottleneck in the middle of town through which all the water in the catchment flows. The river is also tidal so it is prone to flood during a high tide combined with stormy weather. Our natural ecosystems once managed this risk effectively and could do so again.

Lets value water more

Sometimes we expect too much of our watery ecosystems. We want protection from flooding but build more homes on the floodplain reducing the floodwater storage of these areas, which can exacerbate local flooding. We can help in simple ways such as considering our water usage, having water butts and making use of permeable surfaces instead of hard paving.



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Top photo
courtesy of www.sussexflowinitiative.org

Below: The flood plain
at Lewes.





Chalk aquifers

Chalk is one of the rarest geologies in the world but we have a large chunk of it in Sussex in the form of the South Downs. The rainwater which falls on the downs, filters through the chalk like a big sponge, and is naturally cleaned by the chalk. Beneath the downs it forms natural underground reservoirs called aquifers, eventually emerging (maybe more than 100 years later) as clean, pure springs of water that flow and even pop up in Pells pool. Just think about what is happening under your feet!

Chalk downs

How does the beautiful and endangered Adonis Blue butterfly help provide high quality beer?

The type of vegetation and land management on the downs makes all the difference to the quality, quantity and reliability of supply of water. Chalk grassland that is managed for the benefit of species such as the Adonis Blue butterfly can support as many as 50 different species of plants in one square meter, capturing and aiding the infiltration of rainwater, reducing run-off that can cause flooding, also avoiding the risk of pollutants reaching our water supply.

Dry valleys

Dry valleys in our chalk landscape originate from the ice ages when freezing conditions prevented water filtering into the ground. During ice age summers, fast-flowing surface meltwater streams carved gentle valleys on their passage downhill. An example within Lewes town runs through the Paddock where now invisible water still flows below the surface. This lovely landscape feature connects the downs with the river and could act as a wildlife corridor if we wanted.

Springs and a Knucker hole

Knucker holes are strong chalk springs where sometimes the water wells up in a turbulent flow. The water may have been filtering down through the chalk from rain that fell long ago. Knucker holes are reputed to be bottomless and retain a constant temperature through the seasons. Beware though as knucker is a word from Saxon times associated with water dragons!



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Top left: Chalk grassland at Malling Down.

Centre: Adonis Blue butterflies.

Top right: A knucker hole near Lewes.



Chalk streams

The Winterbourne is a rare and special feature that runs through Lewes. It is a seasonal chalk stream that connects the downs with the river having emerged from a spring at the foot of the hills. There are approx 210 chalk streams in the world with 85% here in south and south-east England. Due to the filtering effect of the chalk its waters are alkaline and clear.

Wetlands

Healthy wetlands are vital for both society and wildlife. They can help to reduce flood risk downstream, improve water quality, support biodiversity by providing crucial habitat for a wide variety of aquatic, semi-aquatic and terrestrial species, help to improve air quality, contribute to regulating the climate, and provide important recreational areas.

Wetlands are important but threatened habitats, with at least 80% of Sussex wetlands estimated to have been damaged or destroyed, often by digging ditches and draining the areas to improve accessibility and/or agricultural productivity.

In many places rivers have been confined to their channels by deepening and straightening them, and by building



embankments. Whilst this may be necessary in areas where people have built alongside watercourses, in other areas, if the river can be reconnected to its floodplain as it would naturally be, huge volumes of water can be temporarily stored during flood events, benefiting communities downstream by reducing the impacts of flooding to properties and other infrastructure. Restoring the connection between a river and its floodplain can also begin to encourage the formation or restoration of degraded wetlands.

The Pells wetland is connected to the downs via the chalk springs and the chalk aquifer. This little area provides flood protection by acting as a sponge and is a lovely example of how floodplain areas could be left in a more natural state, benefiting wildlife as well as us.

Marshes

Marshes such as Offham Marshes just north of Lewes are rich habitats for wildlife and naturally contribute to flood management

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Top left: Pells wetlands.

Top right: diagram of water cycle in the Ouse valley.



Water meadows

There are water meadows and wetlands on the floodplain alongside the River Ouse upstream and downstream of Lewes. They naturally store flood water, reducing flood risk in Lewes

Riverside woodland

Floodplain woodlands are amongst the most natural and dynamic woodland systems and can slow down and clean floodwater, contributing to flood alleviation. Now-rare species such as the otter depend on this scarce habitat. It is the natural home of the Black poplar, the most endangered native timber tree in Britain, ancient examples of which remain just north of Lewes town and a small plantation just south of the town in The Lewes Railway Land.

Reedbeds

Reedbeds naturally filter water, protect from erosion and are great wildlife habitats. Chris Drury, a local but internationally famous environmental artist worked alongside ecologists to create an ecologically rich artwork of reedbeds (now home to specialist species such as reed warblers) in the pattern of a

double vortex, representing the flow of blood through the heart and creating a lovely space to walk and contemplate in the heart of Lewes.

Dew ponds

Dewponds are shallow clay-lined pits created by people on the downs where there is no surface water, to feed grazing sheep and cattle livestock. They attract many types of wildlife.

Rain gardens and SUDS

Rain gardens are designed to be attractive features that provide localised flood control, reduce water loss into drains and out to sea, instead helping to recharge our groundwater. There is a specially built planter built to take water from Southover Church roof and plans are afoot to create raingardens to reduce flooding of several roads in Lewes.

Special beneficiaries of Lewes water

Harveys
Pells Pool
All of us!



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Top left: Floodplain at Offham Marshes.

Top right: *Heart of Reeds* by Chris Drury.



Natural Flood Management in the River Ouse

Natural Flood Management (NFM) is a way of reducing flooding that works with natural processes rather than against them. It offers a range of different techniques to help slow and store water upstream, in order to reduce flooding downstream, and also supports a multitude of other ecosystem services.

Over the last 100 years, our landscape has been extensively drained for agriculture and engineered to channel water into the river and out to sea as quickly as possible. Floodplain woodlands were cleared to access the nutrient rich soils for farming. A large network of drainage ditches, combined with a dredged and deepened river channel means that under extreme rainfall we see a rapid rise and fall in water levels, creating a large flood surge with devastating results for communities downstream. This historic management has also led to a degradation of our rivers and streams, with uniform deep sided channels that lack many of the natural features and habitats important for river health, like bankside vegetation and in-channel wood.

By restoring the ability of the land to slow and store water, rainfall is once again able to slowly drain into streams, or percolate deeper into soils and replenish groundwater stores.

The Sussex Flow Initiative (SFI) is an NFM project focused on reducing flood risk in Lewes and other nearby towns and villages. Since they began in 2012, with the help of local volunteers, they have planted over 57,000 trees in the form of 8.9 km of new hedgerow and 8.3 ha of woodland, including 4.2 ha of floodplain woodland & 125 rare black poplars. Trees can help to reduce flooding by intercepting rainfall, taking up water from the soil, slowing down surface run-off and floodwater, and promoting water infiltration and percolation into soil and groundwater. These processes hold water on land, and reduce the amount and speed of the delivery of water to our streams and rivers. The Sussex Flow Initiative has also created over 3,250,000 litres of new, seasonal water storage, including a flood storage pond, wader scrapes and a washland which can be activated in every rainfall event.

SFI works with landowners, local people and others to investigate, promote and create natural features designed to slow and store water in the landscape. They aim to deliver multiple benefits for people and wildlife, and show how NFM can be used to support traditional flood management methods to help reduce flooding.

For more information on Natural Flood Management and the Sussex Flow Initiative, please visit www.sussexflowinitiative.org



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Top left: Wader scrape acting as temporary water storage following the excavation and breaking of a nearby subsurface land drain. This water would otherwise be rapidly transported downstream.

Middle: Volunteers tree planting on slopes adjacent to the River Uck (a tributary of the River Ouse) at the Sussex Horse Rescue Trust in Uckfield

Top right: Leaky dam constructed to slow and divert water during flood events.

the local economy and Lewes pound



It is easy for us to forget that rich, healthy natural ecosystems are vital for our wellbeing, including that of our economy.

Our natural environment is vital to our health and prosperity.

- Here in Lewes, we draw upon ecosystem services from around the world, so we don't know when our consumption choices are damaging other places.
- Technologies and culture buffer us from our interdependence with nature.
- The mainstream economy currently doesn't recognise or put value on the natural services we get for free so it is easy to damage or even destroy ecosystems' capacity to support us.

Local relationships

When we look, we can see examples of how our local businesses are benefiting directly from our local ecosystems. A wonderful example is how the chalk spring water that has filtered through the chalk downland on Malling determines the quality of Harveys

beer. That Malling Down is a beautiful species rich nature reserve supporting populations of the incredible and endangered Adonis Blue butterfly is more than a bonus – it is really important because it is free of pollutants.

How can we help?

A fantastic initiative is the creation of our own local currency, the Lewes Pound, helping local businesses, local ecosystems and our overall wellbeing.

- Use the Lewes Pound.
- Use local independent producers and retailers
- Support the wildlife trusts and other nature conservation initiatives
- What do you do?

For more information visit:
www.thelewespond.org



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health, wealth and happiness



The Lewes Pound – Celebrates Lewes

The Lewes Pound keeps money circulating within Lewes and attracts visitors to the historic county town of East Sussex. It is a creative yet practical way for local people to make money work for Lewes. Most money spent locally circulates within, and benefits the local economy. Most money spent in national chains is taken out of Lewes. The Lewes Pound encourages demand for local produce, goods and services.

The Lewes Pound aims to add to the Health (encouraging local producers and markets; and decreasing CO2 emissions through reduced transport costs and food miles); Wealth (through supporting local economy of independent traders, suppliers, services and producers; and encouraging visitors to Lewes) and Happiness (increasing a sense of pride) of our community.

Lewes Pounds are available from seven issuing points - Harvey's Brewery, Cliffe; Lewes Town Hall; Depot Cinema; The Patisserie, Station Street; Richards & Sons, Butchers, Western Road; Skylark independent bookshop, Needlemakers; and the Lewes Farmers Market.

For more information visit: www.thelewespond.org

The Riverside – Food Hall, Brasserie and Shops.

The Riverside supports the local environment as a market for local farm and fish produce; supports the local economy as a centre for local shops; and supports the local community with its renowned local café and brasserie.

The Riverside is a bustling centre connecting local independent businesses with the local environment and the local community. Each local shop has its own identity making shopping an engaging activity again – full of necessities, refreshments and treats. Most of the shops in the Riverside accept Lewes Pounds, attracting visitors and making connections with Lewes and the surrounding area.

For more information visit: www.riverside-lewes.co.uk



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Top left: the current Lewes Pound £10 note, supporting and promoting South Downs National Park. Centre: celebrating the Linklater Pavilion. Right: the Battle of Lewes 750th anniversary note, celebrating the Battle at Landport Bottom





Harveys Brewery – Handmade in Lewes

Harvey's Brewery has a strong connection with the local environment – using water from its own artesian well, filtered through the local chalk and locally sourced ingredients wherever possible.

Harvey's Brewery is renowned throughout the South East of England for its wonderful range of award winning, traditional cask ales since 1790. This is achieved by selecting the finest raw materials and combining them with unique 'local' conditions brewed within a traditional brew-house.

In addition to returning all by-products, such as spent hops for mulch fertiliser and spent grains as cattle feed to local agriculture, both casks and bottles are returned to the brewery for washing and reuse. Harvey's Brewery Depot is run on 544 roof solar panels. The panels generate an estimated 92,000kWhs of electricity a year, with any surplus feeding back into the local grid. The panels are owned by OVESCO the local community energy company, who celebrated their tenth anniversary with the release of a special edition Lewes Pound note, photographed on Harvey's roof.

For more information visit: www.harveys.org.uk

Cliffe Precinct – Farmers Market

The Lewes Farmers Market brings together carefully sourced local produce supporting the rural economy. The Lewes Farmers Market runs from 9-1pm on the 1st and 3rd Saturday of the month at the Cliffe Precinct, Cliffe High Street. The market is a lively way to support the local economy by bringing together those who care for the local environment and the local community. The Lewes Pound has a stall here on the first Saturday of each month encouraging and explaining the benefits of shopping locally.

The award-winning market was established in 1998 and has grown to become one of the most vibrant and successful Farmers Markets in Sussex. Each month there are around 40 producers, offering a wide range of local produce, plus seasonal guest producers to tie in with the growing year.

For more information visit:

www.commoncause.org.uk/lewes-farmers-market



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Top right: Harvey's Brewery, beside the River Ouse.

Middle: the Riverside building next to Cliffe Bridge, as the Ouse flows through Lewes.

Top right: Lewes Farmers Market, photo courtesy of www.commoncause.co.uk



pollination



Without pollination, much life would not survive

One out of every three mouthfuls of our food depends on pollination. Without butterflies, bees, hoverflies, and other insects visiting flowers we would have very little to eat. Wildflowers and many birds and mammals depend on pollination to survive. Globally this pollination service has an economic value of approximately £120 billion and a value to the UK alone in the region of £690 million each year.

Many pollinators are also beautiful, fascinating and marvellous. Look out for the Chalkhill Blue butterfly, Hummingbird Hawk moth, Red-tailed bumblebee, Ruby-tailed wasp and Marmalade hoverfly. Great places to see them are our surrounding chalk downland such as Malling Down but you might find some in suitable green spaces in the middle of town too.

Our pollinators are in trouble

Pollinators need healthy ecosystems to thrive but bees, moths and butterflies have all declined by 65 – 70% over recent decades. Why? Habitat loss and pesticides are major factors.

How can we help?

- Lewes District Council has agreed to stop using pesticides. Let's make our own gardens pesticide-free too.
- Wildflower Lewes, a community group, is planting wild flowers in our green spaces and verges - and encouraging good management too.
- We can make our gardens more wildlife friendly.
- Support Lewes Community Allotment, Baxters Field and the Railway Land Wildlife Trust.
- Support B-Lines joining wildlife rich areas.
- Buy local organic food.



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our wooded townscape

Trees make up a significant component of the landscape of Lewes, which has a high proportion of woodland cover.

Partly as a result of the varied geology across Lewes Borough there are many soil types – from chalky downland loams to alluvial silt in the river valley which supports a wide variety of tree and shrub species. As well as the wide variety of shapes we may also enjoy blossoming trees in spring, their autumn colours and many beautiful bark textures. Some of the most significant trees in the town are now being mapped as part of an “[Urban Arboretum](#)” initiative and residents and visitors are invited to contribute images and stories about their favourite trees.

Historic trees and new arrivals

Some of the most significant trees in Lewes are notable for their age, some dating back centuries to previous generations of tree-planters for which we should be most grateful. New tree planting to replace losses from old age, development, storms, or floods has been the mission of many Lewes residents, in their gardens, or supported by local councils, donations and many committed hands-on volunteers such as Friends of Lewes Tree Group.

Trees care for us

Trees not only provide a pleasant backdrop to the town, but provide useful “ecosystem services” that we shouldn’t take for granted. Some of these can be demonstrated along the “Tingle’s Way” route across the town.

Examples on Tingle’s way

- Trees are valuable wildlife habitats (whether young or old). Trees support wildlife, particularly insects and birds, but the contribution made by leaf fall, and even decaying trees, supports essential soil processes needed to retain a healthy soil environment capable of resisting environmental changes.
- Trees absorb Carbon dioxide, so help to “mop-up” some of the fossil-fuel emission causing climate change. Using things made from timber rather than man-made alternatives, such as plastic, helps to lock-up carbon long-term and substitutes for non-renewable alternatives.
- Trees also absorb local pollution, particulates and even noise, so make a valuable screen near roads to help overcome the negative impact of traffic.



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Left to right:

Friends of Lewes tree planting on the Nevill, Lewes. Photo by Audrey Jarvis.

Trees along the River Ouse.

Decaying trees provide valuable habitat and nutrients.

Trees make useful screening for noise and pollution as well as giving attractive shade, Cliffe High Street.



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Tingle's Way

Design by Lynda Durrant
www.fullcircle-design.co.uk

Interesting information:

The Millennium Ecosystem Assessment
www.greenfacts.org/en/ecosystems

Sussex Wildlife Trust
[sussex wildlife trust summary report.pdf](#)

The South Downs National Park
[Ecosystem Services Background Paper.pdf](#)

The Brighton and Lewes Downs UNESCO Biosphere Reserve
www.thelivingcoast.org.uk

Sussex Flow Initiative
www.sussexflowinitiative.org

TTL & Lewes Pound
www.transitiontownlewes.org

Lewes Railway Land
www.railwaylandproject.org

Wildflower Lewes
www.facebook.com/wildflowerlewes

Lewes Community Allotment
www.commoncause.org.uk