River Stour, Nayland

A much loved stretch of River, well used by residents and visitors

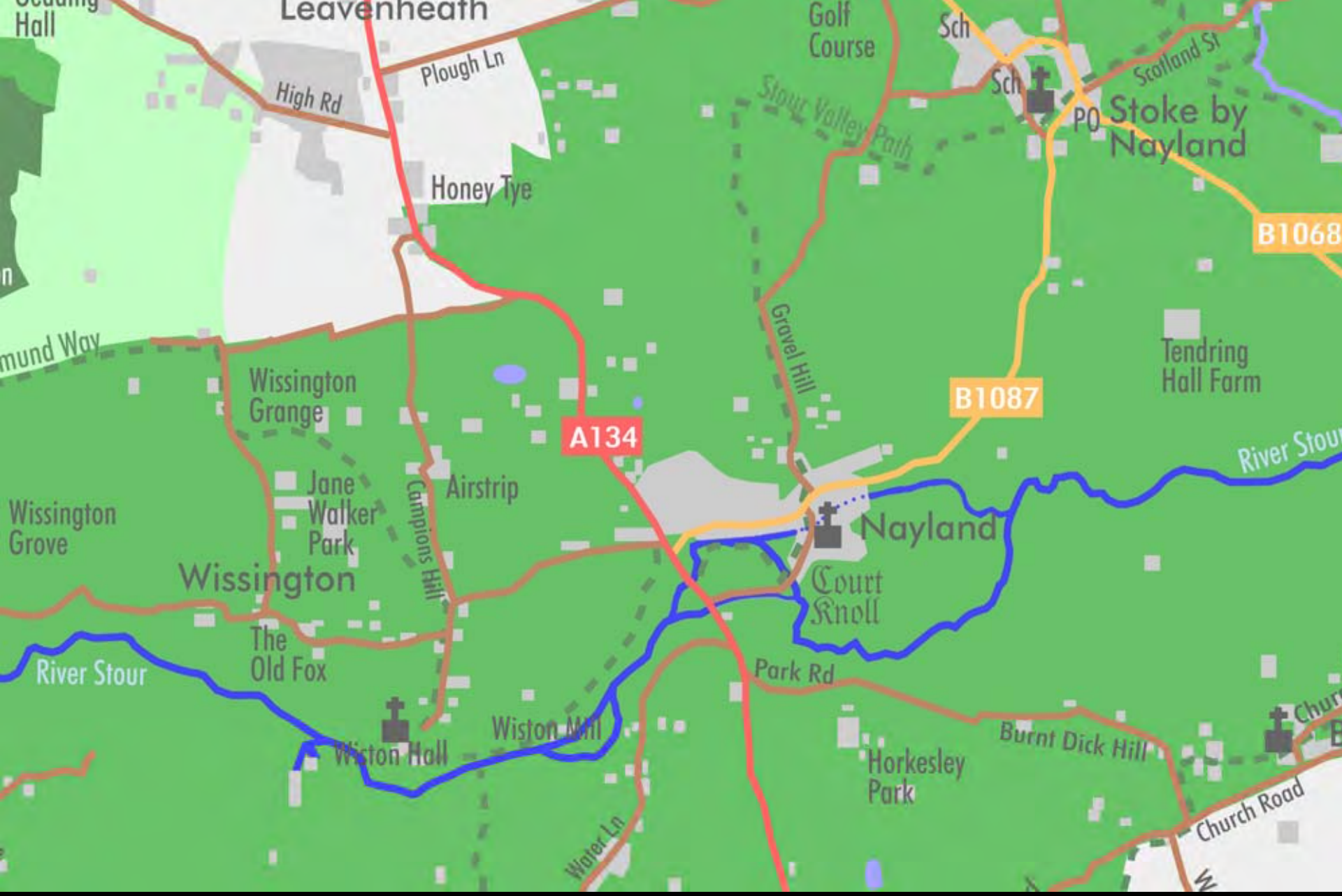
BUT A RIVER IN NEED OF MAINTENANCE

Compiled by Lorraine Brooks, Editor, Nayland with Wissington Community Times, July 2022

Contents

The River Stour at Nayland; from the A134 tunnel to the Abell Bridge.

Caley Green, an open space owned by Suffolk County Council, has 35m stretch of accessible riverbank which is well used. Nayland Meadow has a riverside footpath which is well used by residents. The Meadow was purchase with contributions from residents and is managed in perpetuity by the Nayland with Wissington Land Co., a registered charity.



The River Stour at Nayland divides, therefore flow along each waterway is reduced.
This, along with its shallow depth, allows reed type vegetation to spread its creeping rhizomes .

We work to create better places for people and wildlife, and support sustainable development.

Environment Agency

Who we are

We were established in 1996 to protect and improve the environment. We have around 10,600 employees. Our head office is in Bristol and we have another office in London. We have offices across England, divided into 14 areas listed below. See a map of our areas.

Responsibilities

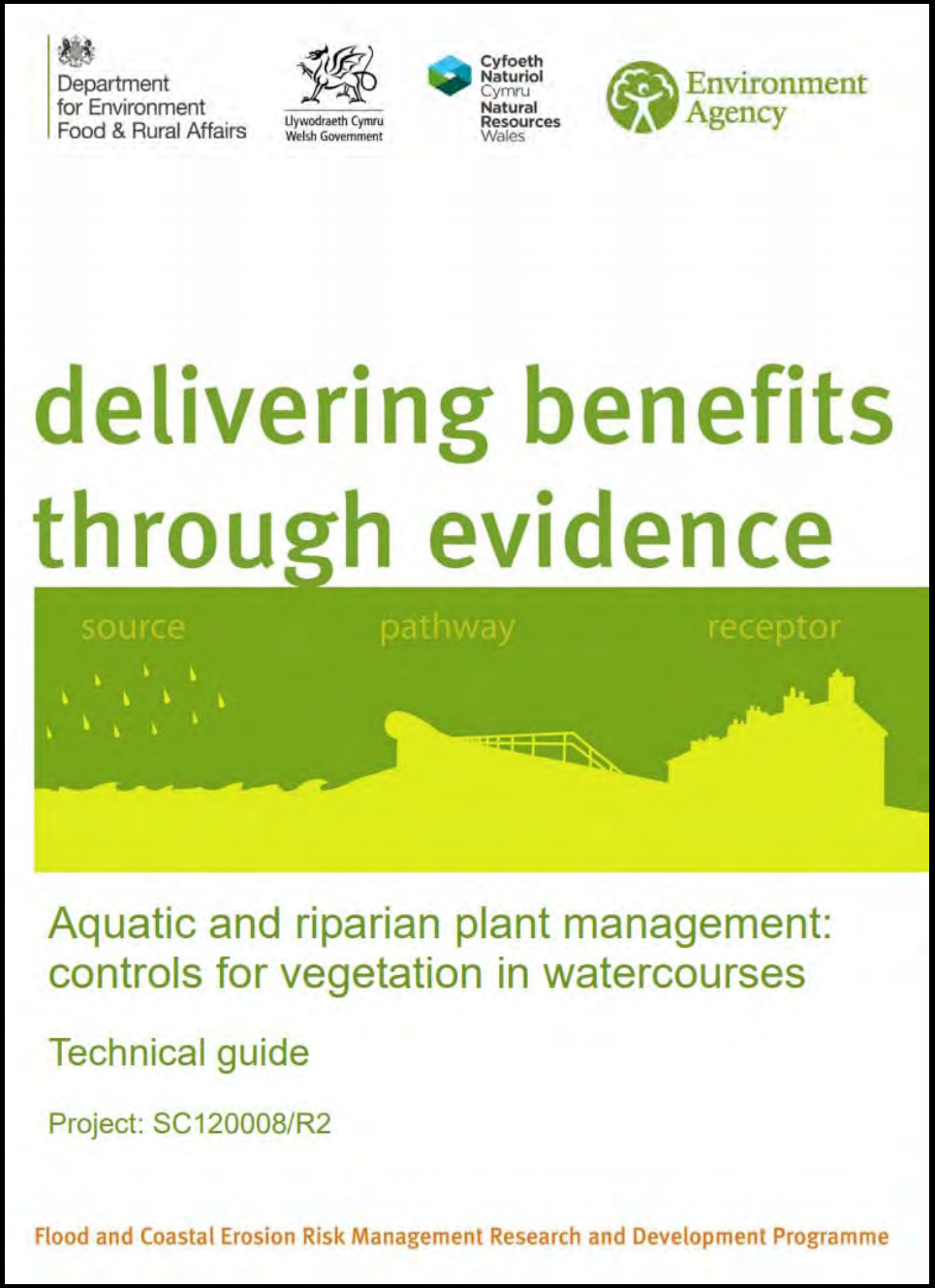
Within England we're responsible for:

- regulating major industry and waste
- treatment of contaminated land
- water quality and resources
- fisheries
- inland river, estuary and harbour navigations
- conservation and ecology

We are also responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea.

Lead local flood authorities (LLFAs) are responsible for managing the risk of flooding from surface water, groundwater and ordinary watercourses and lead on community recovery.

More detail about who is responsible for managing flood risks.



In this document published by the Environment Agency in July 2014 it states:

"Vegetation is a natural and vitally important part of aquatic and riparian ecosystems. Excessive growth of aquatic and riparian vegetation can have adverse impacts on both the ecosystem itself and the human uses of the watercourse. This can result in the need for management." *(page 5)*

"Tall emergent species can be very problematic, particularly in narrow and relatively shallow watercourses, where they can completely block channels." *(page 83)*

"Over recent years, restricted budgets and increased environmental concerns have reduced the frequency and intensity with which operating authorities undertake vegetation management." *(page 11)*

As can be seen by photographs in pages further on in this photo document there is excessive growth of aquatic and riparian vegetation along the River Stour, particularly through Nayland.

The EA document is available at:
https://assets.publishing.service.gov.uk/media/6034e181d3bf7f26576beefa/SC120008-R2_Technical_guide.pdf

2. Ecology and management of aquatic and riparian vegetation

Vegetation is a natural and vitally important part of aquatic and riparian ecosystems. Excessive growth of aquatic and riparian vegetation can have adverse impacts on both the ecosystem itself and the human uses of the watercourse. This can result in the need for management.

2.1 Importance of aquatic and riparian vegetation

Aquatic and riparian plants are fundamental to the structure and function of many freshwater habitats. The benefits they bring include:

- aerating the water through photosynthesis
- providing shelter and refuge for riverine animals
- providing habitat and food for aquatic invertebrates, fish and a range of other species
- providing habitat connectivity and routes along which species can move and disperse
- improving water quality
- consolidating bed and bank substrates
- reducing the risk of bank erosion and scour
- mitigating the impacts of diffuse pollution by acting as a buffer
- reducing the risk of flooding through increased channel 'roughness' which slows flows passing downstream
- improving resilience against droughts by increasing the retention time of water
- providing amenity, aesthetic and recreational benefits

2.3 Types of aquatic and riparian plants

A number of species of aquatic and riparian plants can cause a range of problems, requiring different approaches to management. This guide splits the management of aquatic and riparian vegetation into a number of broad species groups, based on growth habit (Table 2.1).

2.4.1 Reducing flood risk

Aquatic and riparian plants are often managed to reduce flood risk. Vegetation can increase flood risk by obstructing the flow of water, reducing channel capacity, obstructing in-channel structures and encouraging silt accumulation. These problems typically arise in summer when plant growth is at its maximum. The dead stems and leaves of many species, particularly emergent ones, can persist into autumn and winter causing additional problems.

Detached plant material, floating species and algae can also cause problems by floating downstream, blocking pumps, sluices, weirs and filters. They can also block the intakes of hydroelectric turbines, drinking water and irrigation systems.

Example: Brompton Beck, North Yorkshire

Brompton Beck frequently floods some of the houses in the village of Brompton near Northallerton. Lesser water-parsnip *Berula erecta* is the key problem species here as it can cover the whole channel width, reducing flow conveyance.

During high flows this relatively fragile species also dislodges, breaks up and flows downstream where it blocks the bridge at the downstream end of the village green, contributing to local flooding issues. To reduce this risk, in 2010 the beck was de-weeded using an excavator fitted with a solid bucket. Vegetation has regrown within a few years meaning repeat or alternative management is required.

2.4.2 Agricultural purposes

Aquatic and riparian plants also need to be managed for agricultural purposes. When vegetation chokes watercourses adjacent to farmland it can cause water levels to rise, resulting in land becoming waterlogged and under-drainage systems becoming ineffective; this affects farming operations.

On agricultural land it is also necessary to ensure:

- summer flows are sufficient to allow irrigation systems to work effectively
- water tables are high enough to encourage crop development
- wet fences are maintained to manage livestock safety and movements

2.4.3 Recreation and commercial uses

Excessive plant growth can impede fishing, boating and commercial navigation.

5.5 Emergent species – tall emergent species

Emergent species are those which are rooted in sediments at the bottom of watercourses and grow in water usually no more than 1 m deep. The majority of leaves and stems extend above the water surface. Within this sub-group of emergent species, are generally very tall species (up to 3 m in height) with very long, narrow leaves.

Tall emergent species can be very problematic, particularly in narrow and relatively shallow watercourses, where they can completely block channels. In larger, deeper watercourses they tend to form margins along the bottom of the banks, where conditions are shallower and, in these instances, are not as problematic.

Potentially problematic tall emergent species discussed below include:

- common reed *Phragmites australis*
- reedmaces *Typha* spp.
- reed sweet-grass *Glyceria maxima*
- reed canary-grass *Phalaris arundinacea*
- common club-rush *Schoenoplectus lacustris*
- branched bur-reed *Sparganium erectum*

There are other tall emergent species that occur in watercourses in the UK. However, these rarely require management and specific sections on these species are not included in this guide. Such species include:

- yellow iris *Iris pseudacorus*
- rush species *Juncus* spp.

Yellow Iris *Iris pseudacorus* © JBA Consulting

5.5.1 Common reed *Phragmites australis*

© JBA Consulting
Common reed *Phragmites australis*

Common reed *Phragmites australis* is the tallest native grass species in the UK, and can grow up to 3 m in height. It has greyish-green leaves with a ligule composed of a ring of white hairs. Its flowers are dark purplish-brown in colour and are very highly branched.

This perennial species spreads through creeping rhizomes, which can grow up to 1 m below ground level. Common reed can cover large areas of swamp and fen, as well as forming dense stands within watercourses within the riparian zone. It can grow in both static and flowing waters. It is found throughout the UK, but is most common in lowland areas where it is a frequent species in the shallower waters of rivers and lakes, growing in water depths of up to one metre. It can also grow on areas of drier land which are only seasonally inundated.

The dense network of rhizomes that common reed *Phragmites australis* forms can be very useful on watercourses helping to stabilise banks and prevent erosion; management should aim to keep a fringe of this species along the toe of the banks to help protect and stabilise them.

Common reed *Phragmites australis*
© Sarah Warriss-Simmons

Common reed *Phragmites australis* is also an important plant, supporting a number of species, for example, by providing nesting habitat for birds such as reed bunting *Emberiza schoeniclus* and reed warbler *Acrocephalus scirpaceus*.

The shade they produce can also suppress the growth of other potentially problematic floating and submerged species (see section 7.5.1).

Fringes of riparian vegetation such as common reed *Phragmites australis* are also important in helping to attenuate overland run-off of soils and nutrient-rich waters, which may help to improve water quality of some watercourses in the long-term (see section 7.5.6).

Key problems caused

- Dense networks of rhizomes can form large stands which impede flows.
- Once established, the roots and rhizomes trap silt and extend the area that they can colonise, which further impedes water flow in the long-term.
- Dense stands can also impair fishing and other recreational activities.
- Following die-back during the winter months, the robust stems can remain standing and continue to cause problems.

Technique type	Applicability	Timing	Relevant sections
Physical	Physical techniques are effective at achieving instant, short-term control; however, many physical techniques do not remove the rhizomes and repeat management is necessary. The dead stems, which remain standing in winter, may also require cutting to prevent flows being impeded. De-weeding with a solid bucket is unlikely to extend to at a sufficient depth to allow for effective longer term control.	Mid July to December October to December	7.3 7.3.4
Chemical	Treatment with a glyphosate-based herbicide is effective and provides longer term control for several growing seasons (usually three) by being translocated to the rhizomes.	July to September	7.4.1
Environmental	Manipulating water levels to more than 1 m for a prolonged period of time may help to control stands. Creating a deeper central channel of more than 1 m should also help in preventing encroachment across a watercourse, allowing just a fringe to develop along the bank toe; this has a number of benefits.	n/a n/a	7.5.4
Biological	Grazing and trampling by cattle, horses and sheep will help to control this species in riparian zones.	n/a	7.6.1
Novel	None recommended	n/a	n/a

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Control methods:

- *Physical techniques are effective at achieving instant, short-term control; however, many physical techniques do not remove the rhizomes and repeat management is necessary.*
- *The dead stems, which remain standing in winter, may also require cutting to prevent flows being impeded.*
- *Manipulating water levels to more than 1 m may help to control stands.*
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The Sluice Gates & Excess Vegetation in the Flood Channel

The Sluice Gates divert high levels of water away from the village via the Flood Channel, but this has become overgown so its capacity reduced. In 2008 (top right) it worked more efficiently than in 2020. Reeds are not a problem above the sluice gates as the water is deep which restricts their growth to along the river bank.

It has been noticed flood water has extended to areas it did not previously flood

Flood waters now affect the area North of the Flood Channel and Horkesley Road onto Nayland Meadow.

Excessive Reed Growth at the Horseshoes Weir

This aerial view of the weir reveals that reed growth is preventing water flowing over the sides at the bottom end of the weir.
The other photos reveal the extent of the build up of silt.
The shallow depth of water provides ideal conditions for reeds to multiply, as they have.

The EA is the riparian owner here and therefore responsible for controlling the reeds here.

Excessive Reed Growth at the Weir

While a neighbouring landowner has cleared some vegetation that breached the weir, residents have watched the reeds advance rapidly in these ideal growing conditions.

Excessive Reed Growth & Silt

Incidents of fluctuating water levels have revealed the amount of silt and debris build up along this whole section of river. Top Right: water from a drainage ditch into the river is carving its way through the silt and sediment.

Piped water from a drain and spring runs along a short ditch into the river here; silt has built up, reeds have created a rapidly growing island. This is becoming larger and will eventually block the ditch. There are no fish fry entering here needing protection. The photo shows that the island, stretching halfway across the river is driving floating debris round the bend and to the mouth of the ditch. This will break down and increase the sland.

Riparian owners fight a losing battle to control this invasive vegetation. They are not permitted, even if they were able to, to carry out any silt management as that can only be carried out by the EA.

With no silt control for over 15 years reeds along the river from the A134 Tunnel to Abell Bridge are flourishing.

As can be seen (left) the river is less than half its actual width.

Fishing Rights cannot be exercised as the river cannot be seen, let alone fished.

Residents use the public open space and the riverside footpath but cannot see the river.

Fishing is permitted on the south bank too, but again access isn't available

The villages of Bures upriver (left) and Dedham downriver (right) do not have this problem with reed type vegetation

River Traffic & Amenity

With a narrow waterway comes greater congestion (these photos were taken at a wider location!).

It also means the only stretch of open riverbank at Caley Green becomes a honeypot for residents and visitors jostling for space for a myriad of activities; launching/landing river-craft, fishing, wild swimming, children playing, swimming & fishing with nets, family picnics, relaxing, enjoying the view, daily visits of the local residential home, a classroom for the local school, photoshoots, etc, etc.

This only accessible riverbank is used for many reasons; even the by the Nayland Fire Service

It’s used by Nayland School & Woodland Corner pre-school for picnics and as an outdoor classroom

The resident swans raise their family here, sharing the space with human activity.

Swans (and some other wild fowl) cannot access or exit the river along much of the riverbank because of the impenetrable reed growth. They too are drawn to the only accessible open space at Caley Green to raise their young.

Biodiversity

The EA frequently quote that they support biodiversity. Biodiversity would be a variety of plant species to encourage a variety of animals, fungi, and microorganisms working together in ecosystems to maintain balance and support life.

Above: examples of plant biodiversity

Reeds, reeds and more reeds is not biodiversity; where is the variety of flora to encourage more diverse fauna? Purple Loosestrife, Yellow Flag, Bisort, Stachys, Butomus, Marsh Marigold and others cannot compete for space among the brutish reeds.

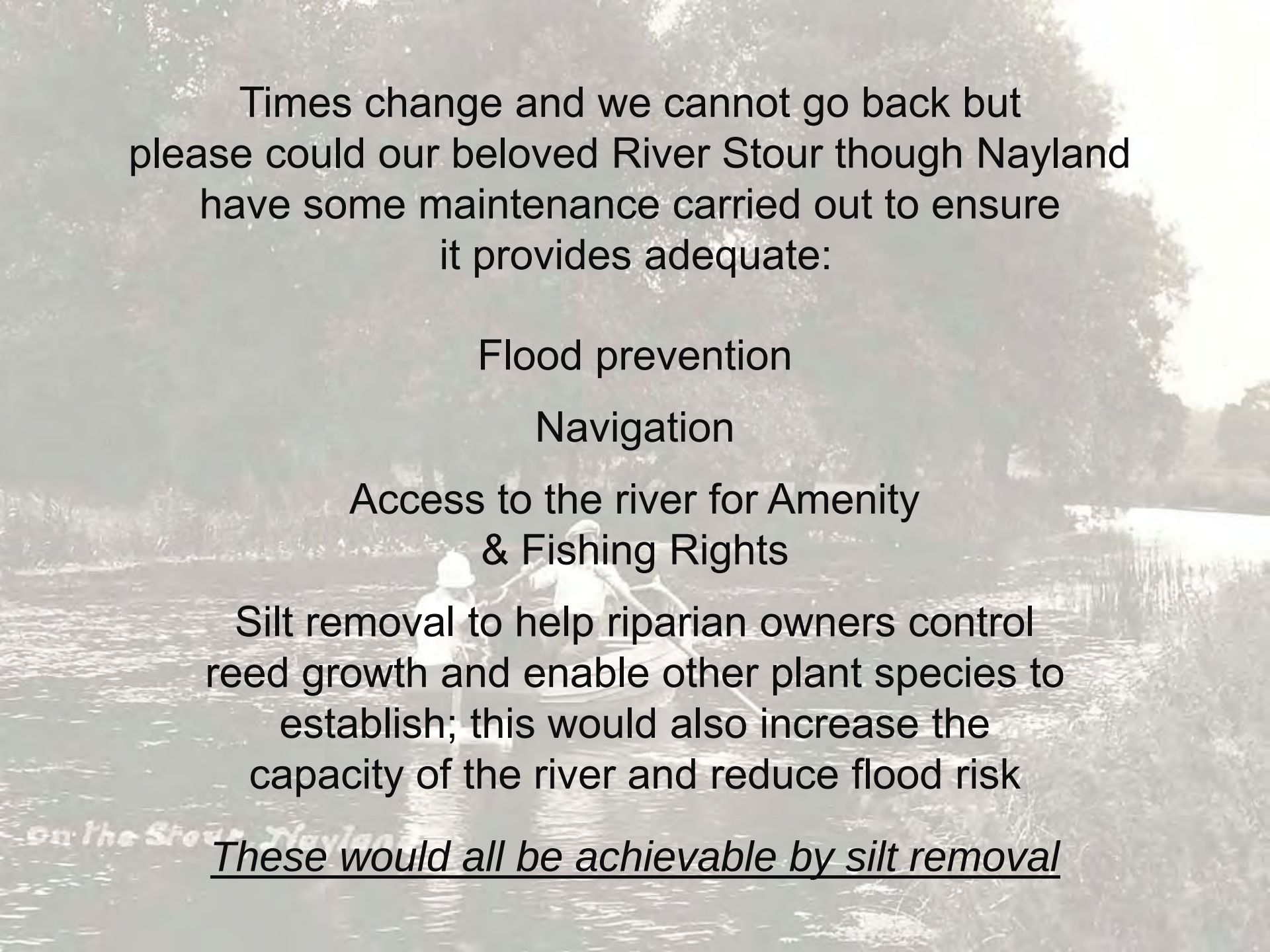
After the Friends of Caley Green exercised a little reed control there have been signs of other species *(Bisort & Loosestrife)* trying to establish.

This cannot happen while reeds dominate.

Our River Choked with Reed Type Vegetation

Navigation, even in a narrow canoe or paddleboard, has it’s challenges

The main river in 2022: just a narrow waterway through a dense jungle of reed type vegetation, hardly a Right of Navigation.



Times change and we cannot go back but please could our beloved River Stour though Nayland have some maintenance carried out to ensure it provides adequate:

Flood prevention

Navigation

Access to the river for Amenity & Fishing Rights

Silt removal to help riparian owners control reed growth and enable other plant species to establish; this would also increase the capacity of the river and reduce flood risk

<u>These would all be achievable by silt removal</u>