

THE OUSE WASHES

“The Ouse Washes offer a rich variety of experiences both as an internationally important wildlife site and its continuing role of protecting the fens from flooding.”



NRA

*National Rivers Authority
Anglian Region*

THE ANGLIAN REGION

The Anglian Region hosts a rich variety of wildlife habitats, flora and landscapes associated with its streams, rivers, ponds, lakes, wetlands, estuaries and coastal waters. Many of these are protected by statutory designations, for example, 75% of the coastline is covered by a conservation and/or landscape designation. Five Areas of Outstanding Natural Beauty fall either partially or wholly within Anglian Region, along with England's newest National Park - the Broads. A fifth of England and Wales internationally important wetlands, from large estuaries such as the Humber and the Wash, to washlands such as the Ouse Washes, occur within this region.



Flooded washland and ditches

INTRODUCING - THE OUSE WASHES

The Ouse Washes extend for some 32 kilometres from the village of Earith at their southern end to the hamlet of Denver in the north. At their widest point they are about one kilometre across.

The Washes were created in the 17th century by the excavation of the Old Bedford and Hundred Foot Rivers and the creation of the Middle Level and South Level Barrier Banks. The containment of flood flows in this area was the great draining of the Bedford Level Fens. With continual improvement and maintenance they are still of strategic importance in the Flood Defence of the River Great Ouse Catchment. They are now also an internationally important area for wildlife.



Ouse Washes in flood

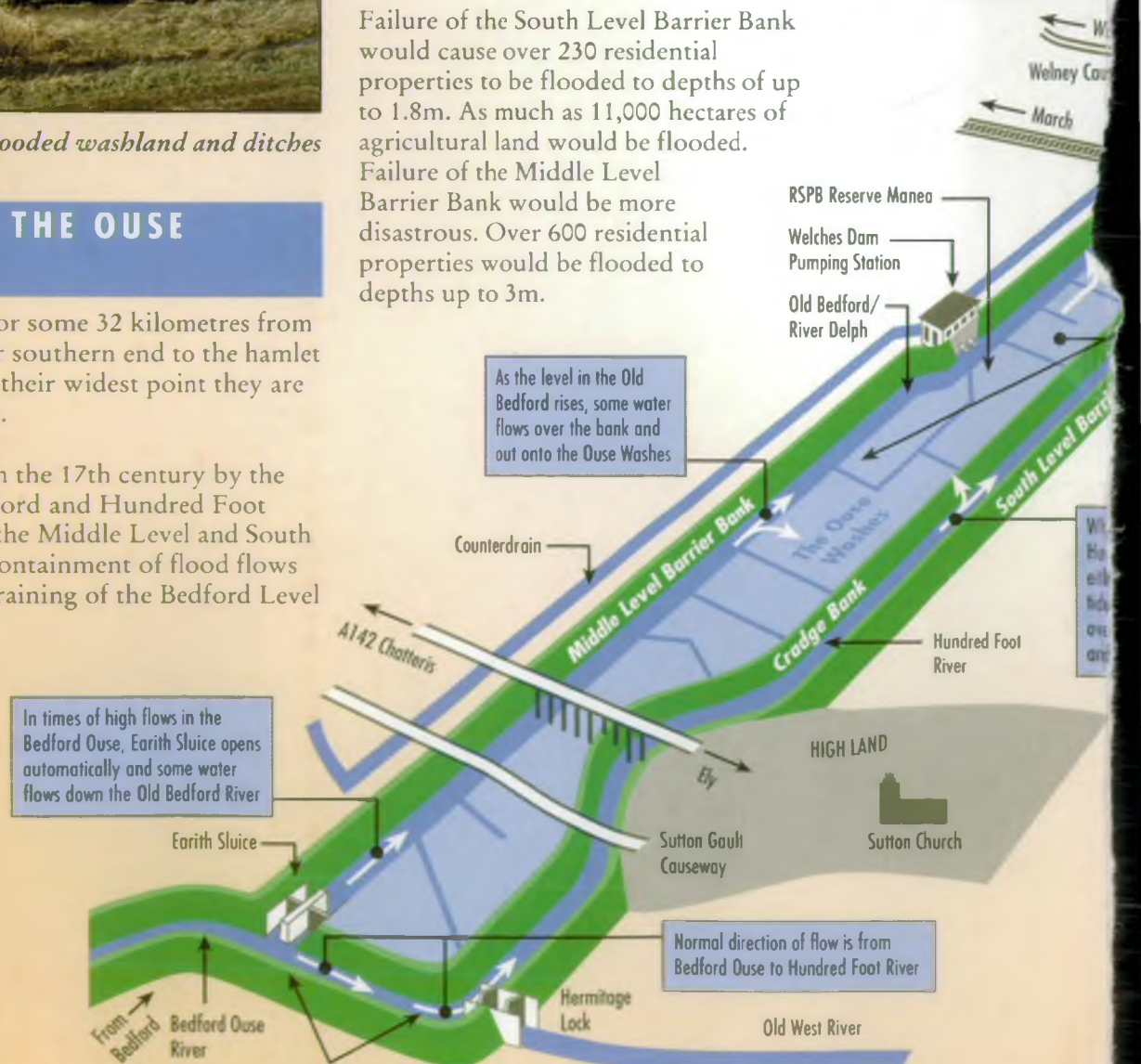
THE OUSE WASHES - FLOOD DEFENCE IMPORTANCE

The Middle and South Level Barrier Banks contain Bedford Ouse flood flows within the Ouse Washes and are therefore vital for the flood protection of the Cambridgeshire Fens. Complete towns, villages and isolated dwellings, together with approximately 29,000 hectares of agricultural land are protected from flooding by the Ouse Washes Defences.

Failure of the South Level Barrier Bank would cause over 230 residential properties to be flooded to depths of up to 1.8m. As much as 11,000 hectares of agricultural land would be flooded. Failure of the Middle Level Barrier Bank would be more disastrous. Over 600 residential properties would be flooded to depths up to 3m.

Flood waters are able to flow through the Hundred Foot River when peak flow

When the peak flood has passed, water flows back into the Old Bedford



The and

Welney Causeway
March

RSPB Reserve Manea
Welches Dam Pumping Station
Old Bedford/River Delph

Middle Level Barrier Bank
The Ouse Washes
Cradge Bank
Hundred Foot River

HIGH LAND
Sutton Church

Normal direction of flow is from Bedford Ouse to Hundred Foot River

Old West River

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T O R

The channel, flood storage area and summer pasture land has allowed significant ecological interest to develop.

The Washes are a designated Site of Special Scientific Interest (SSSI) and as an internationally important wetland have RAMSAR status and are a Special Protection Area (SPA) for wild birds.

Internationally important numbers of Berwick's swan and Whooper swan can be found overwintering and nationally important numbers of migrating wildfowl including teal, gadwall, pintail and tufted duck. Other nationally rare breeding species which are present on the Washes include the hobby, quail, kingfisher and spotted crake.

The Washes support the RSPB Reserve at Manea and adjacent reserves of the Wildlife Trust for Cambridgeshire. Following Flood Defence Improvements the NRA have installed eleven new hides including improved facilities for disabled enthusiasts.

Over 300 species of higher plants have been recorded from the Ouse Washes, including two nationally protected species - the ribbon-leaved water-plantain and least lettuce and a further sixteen nationally scarce species.

Whilst there are surprisingly few comprehensive records of the invertebrate species, there is a rich variety in the ditches, rivers and ponds.



Summer grazing

In the summer pasture must be grazed to maintain the existing flora and to provide the habitat for fauna.

The Washes are one of the last remaining UK examples of regularly flooded freshwater grazing marsh and this grazing is an important feature for the maintenance of the Washes as a flood relief channel.

RECREATIONAL VALUE OF THE OUSE WASHES

The major recreational activities are bird-watching, wildfowling and angling.

Bird viewing facilities are provided by the Wildfowl and Wetlands Trust at Welney and by the RSPB and Wildlife Trust at Welches Dam. The number of visitors using the facilities at Welches Dam per annum varies between 7000 and 9000 with the majority of visits taking place between November and May with February being the most popular month.

Other recreational activities include skating, walking, cycling, boat use and horse riding. It is estimated that over 4000 visitors use public footpaths on the banks of the Washes for rambling and dog walking.

FACTS IN BRIEF

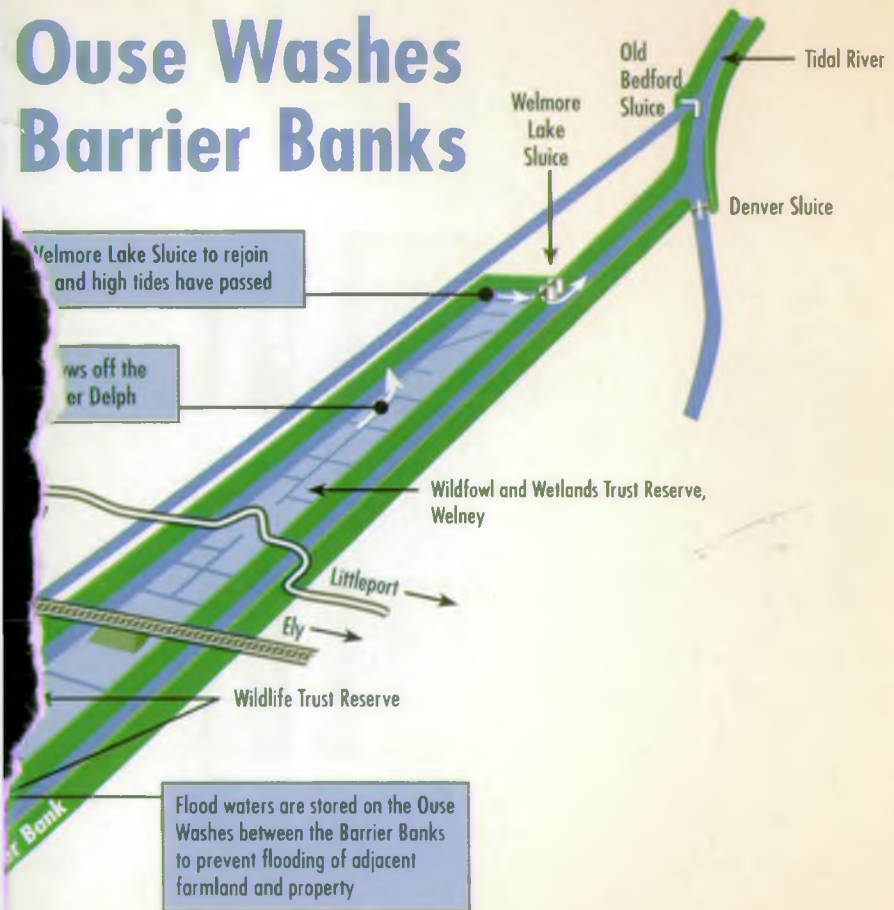
- The Ouse Washes cover about 5,000 acres and are a storage reservoir for flood water in the Great Ouse River System, storing water between the Middle Level and South Level Barrier Banks until flood levels drop and the water can be released to the sea.
- The Ouse Washes are the largest example of regularly flooded washland in Britain and are the most important area of lowland wet grassland. Parts of the site were first notified as a Site of Special Scientific Interest (SSSI) by the Nature Conservancy (now English Nature) in the 1950's, and the whole area became an SSSI in 1968. Their international importance is recognised through their designation as a RAMSAR site under the Convention on Wetlands of International Importance and a Special Protection Area under the EC Directive on the Conservation of Wild Birds 1979.
- Britain's largest concentration of wintering wildfowl is found on the Ouse Washes, with an annual average peak count of 60,950 birds during the five year period 1986/7 to 1990/1. These include internationally important numbers of Bewick's swan and Whooper swan. Nationally important numbers of migrating wildfowl are found, including teal, widgeon, gadwall, shoveler, pintail, pochard, tufted duck and coot, as well as mute swans.
- Over 300 species of higher plants have been recorded on the Washes, including two nationally rare protected species - ribbon leaved plantain and least lettuce.



Flooding would also affect approximately 18,000 hectares of agricultural land. Failure of either bank would cause not only a very high risk of loss of life but also considerable damage to farm buildings and machinery, commercial buildings, vehicles and road and rail infrastructure.

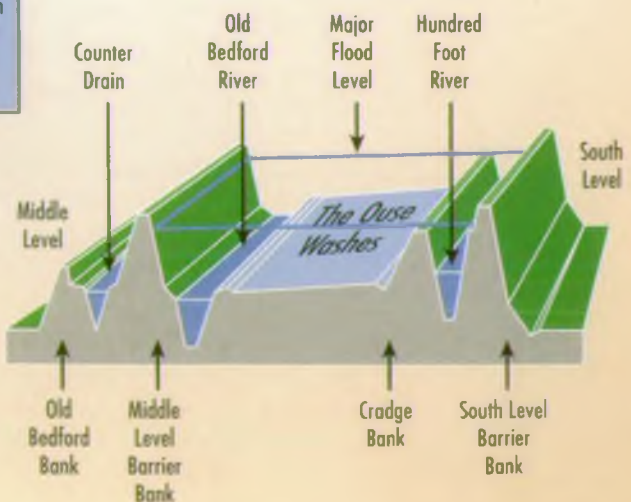
Between 1991 and 1994 the NRA carried out major engineering works on the Barrier Banks to ensure that they are able to withstand a 1 in a 100 year flood. The works have a 'life expectancy' of 50 years and our Engineers have constructed flood defences to protect buildings, roads and property and to reduce the risk of flooding.

Ouse Washes Barrier Banks



When the water level in the Great Ouse River is high, due to upland flood flows or high tides, excess water flows over the top of the Cradge Bank onto the Washes.

TYPICAL CROSS SECTION ACROSS WASHES







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Anglian Region*

NEWS RELEASE

5 May 1995

RE-OPENING OF THE OUSE WASHES NATURE RESERVE, MANEA, CAMBRIDGESHIRE

The National Rivers Authority Anglian Region, the Royal Society for the Protection of Birds and the Wildlife Trust for Cambridgeshire today marked the re-opening of the Ouse Washes Nature Reserve at Manea, Cambridgeshire.

Mr Anthony Morbey, Vice-Chairman of the Great Ouse Local Flood Defence Committee officially re-opened the site following the completion of flood defence improvement works to strengthen the Barrier Banks. In addition, the NRA, together with the RSPB and the Wildlife Trust have upgraded all the facilities on the reserve, including ten new hides and provision for disabled birdwatchers at Welches Dam.

"All the works were undertaken with particular emphasis on the needs of this unique wetland, following consultations with local people, the RSPB, the Wildlife Trust for Cambridgeshire, and other interested organisations," commented Geoff Beel, Area Manager.

"We are pleased to mark today the official re-opening of the reserve," commented Cliff Carson, RSPB Senior Reserve Warden. "This area supports vitally important breeding wader populations and Britain's largest inland concentration of wintering wildfowl. The new hides which have been installed will be of great benefit to our visitors by allowing them to get close-up views of birds such as Whooper and Bewick's swans and many species of ducks."

more ...



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Anglian Region*

FACTS AT A GLANCE

ANGLIAN REGION

The Anglian region is geographically the largest of the NRA regions in England and Wales:

THE REGION	Staff Employed	1,100 (approx)
	Annual forecast expenditure (1994/95)	£81 m
	% of expenditure contracted out	54%
AREA	The region covers approximately 18% of England and Wales	27,000 sq kms (10,500 square miles)
POPULATION	5.7 million	
RAINFALL	Average in Region (1993/94)	59.5 cms
	Average in England and Wales	92.1 cms
FLOOD DEFENCE	Length of fluvial main river	5,775 kms (3,589 miles)
	Embanked fluvial water courses	1,273 kms (791 miles)
	Length of tidal estuary and sea defences	1,355 kms (842 miles)
AREA OF FLOOD PLAIN	200,000 ha	
AREA OF LAND BELOW SEA LEVEL	470,000 ha	
FISHERIES	Length of all fisheries	5,058 kms (3,143 miles)
	National fishing licences issued in region	139,000 (approx) Income £1.6 m (1992/93)
NAVIGATION	Navigable rivers	470 kms (292 miles)
	Navigation licences issued	5,387 Income £0.6m (1992/93)
WATER QUALITY	Bathing Waters (EC definition)	33
	Discharge Consents	6,500 (approx) Income £4.8 m (92/93)
	Prosecutions	44 (1992/93) 68 (1993/94)
WATER RESOURCES	Quantity licenced	3,400 tcmd (thousand cubic metres daily)
	Abstraction licences issued	10,920 Income £13.1 m (1992/93)

The rivers of the region include: the Ancholme, Witham, Welland, Nene, Ant, Colne, Gt. Ouse, Wissey, Cam, Lark, Nar, Yare, Bure, Waveney, Blackwater, Crouch, Stour, Chelmer and Wensum.

Other important waters include the Norfolk Broads.

For further information contact the Public Relations Department on

Tel: (0733) 371811

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Notes to Editors:

1. The Ouse Washes are the largest example of regularly flooded washland in Britain and are the most important area of lowland wet grassland. Parts of the site were first notified as a Site of Special Scientific Interest (SSSI) by the Nature Conservancy Council (now English Nature) in the 1950's, and the whole area became an SSSI in 1968. Their international importance is recognised through their designation as a RAMSAR site under the Convention on Wetlands of International Importance and a Special Protection Area under the EC Directive on the Conservation of Wild Birds 1979.

2. During the five year period of 1986/7 to 1990/1 an annual average peak count of 60,950 birds, the largest inland concentration of wintering wildfowl in Britain, was found on the Ouse Washes. Internationally important numbers of Bewick's swan, Whooper swan, widgeon, gadwall, pintail, teal and shoveler overwinter on the Ouse Washes. Bird viewing facilities are provided by the RSPB and Wildlife Trust at Welches Dam, Manea and by the Wildfowl and Wetlands Trust at Welney. The RSPB and Wildlife Trust currently manage 1,200 hectares on the Ouse Washes.

3. The Middle and South Level Barrier Banks contain Bedford Ouse flood flows within the Ouse Washes and are therefore vital for the flood protection of the Cambridgeshire Fens. Towns, villages and isolated dwelling, together with approximately 29,000 hectares of agricultural land are protected from flooding by the Ouse Washes Defences.

Press Enquiries: Please call Sian Thomas or Caroline Anderson (NRA) on 01733 371811; Paul Lewis or Chris Durdin (RSPB) on 01603 660066; Sue Bashford (Wildlife Trust) on 01223 846363.

OUSE WASHES



BARRIER BANKS IMPROVEMENTS



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Anglian Region*

HISTORY

The fens, rivers, defensive banks and washes as we know them today are almost entirely man-made. Situated where several rivers ran off higher ground into the Wash the fenland area was for centuries a wet, boggy area frequently under water and inhabited by sparse populations of fen men who lived on the numerous areas of 'high' ground and who survived mainly by their cunning and knowledge of the area. In 1630 Francis Russell the Earl of Bedford formed a Company of Adventurers and engaged the Dutch engineer Cornelius Vermuyden to drain the "Great Level" of the Fens. By 1637 the old Bedford River was complete but many of the locals complained that there was no real improvement. In 1638 the King intervened in the argument and re-engaged Vermuyden to take a fresh look at the problems. In the same year the complaining commoners appointed Oliver Cromwell of Ely as their advocate against the drainage. In 1650, having fought and won the Civil War, Cromwell again called on the expertise of the Dutch in the shape of Vermuyden to complete the New Bedford or Hundred Foot River and a sluice at Denver. These two channels run straight towards the Wash enclosing a flood land which still fills with winter flood water as Vermuyden intended.

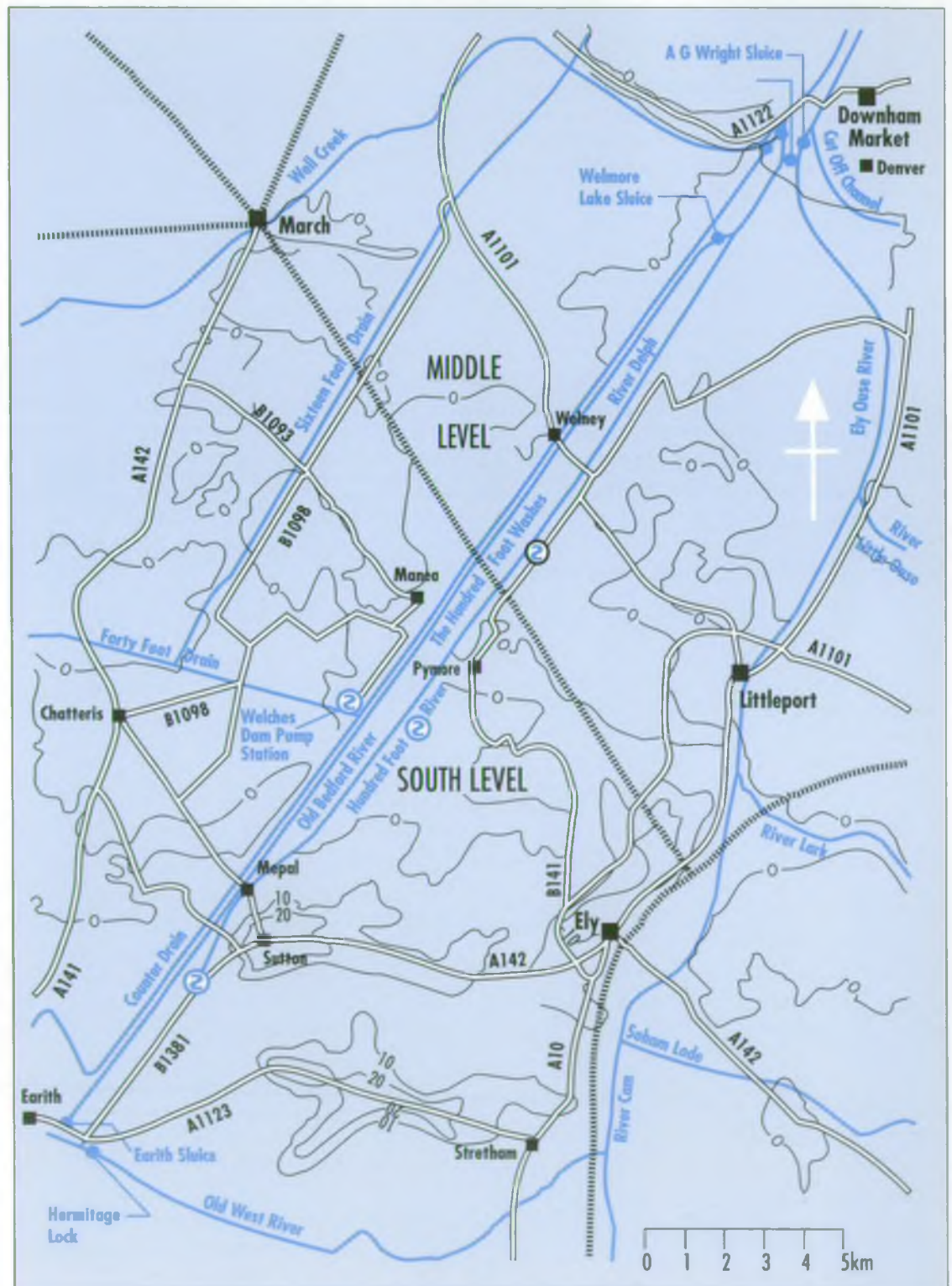
These wetlands, man made to act as a safety valve for flooding, are between the Old Bedford and the New Bedford (or Hundred Foot) River. Adjacent to and on the outer edge of those rivers are the Barrier Banks which form the rims of the water retaining area known as the Ouse Washes.



Cornelius Vermuyden



Oliver Cromwell

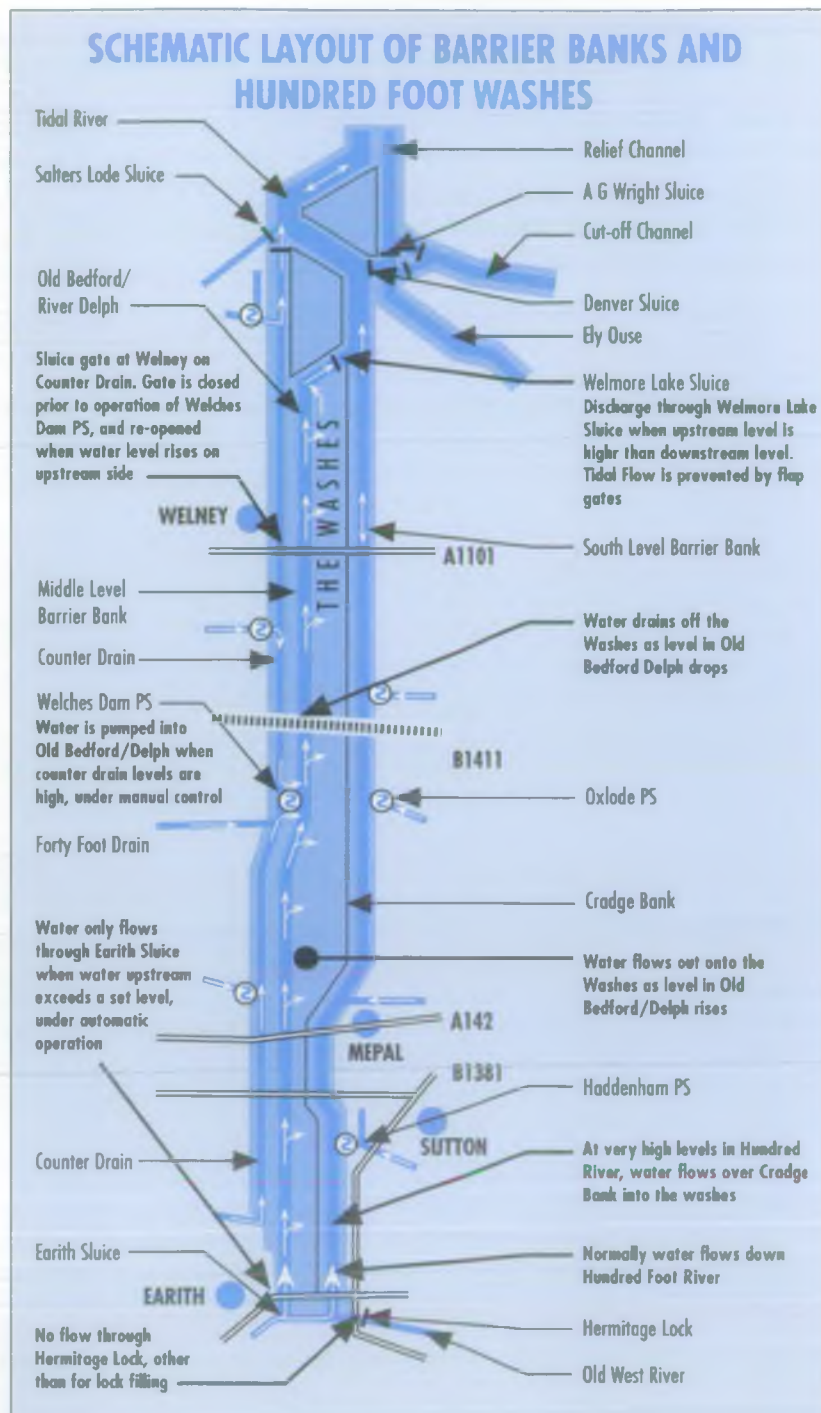


FLOODING

By the 17th century the fens were adjudged to be "drained". However, conditions were far from those we see today. Vermuyden had managed to create "summer lands" capable of being used for grazing during the summer with a few higher parts being used for arable farming. The present intensive cultivation only became possible with the formation of various Internal Drainage Boards which undertook on behalf of the farmers to embank tracts of land and keep them dry by cutting ditches and using engines to lift water off the land and up into the rivers.

The last three hundred years have seen the system fail on many occasions and vast areas of land have been temporarily flooded with either fresh or salt water. Banks have been constantly monitored and over the years the levels have been raised to keep pace with the slowly shrinking peat of the fens.

The floods in March of 1947 serve as a reminder of the catastrophic effects which can result when several forces of nature combine. Long hard frosts and heavy snowfalls followed by a sudden thaw in early March left fields waterlogged, ditches and culverts frozen solid with a rush of water from the higher land of the Ouse watershed trying to cross the Fens and get away to sea. The Washes were soon in use and by the morning of Sunday 16th March with water in the Washes and the Ouse and its tributaries rising rapidly, the flood water rose perilously near the peak of the banks. The efforts of large gangs of local men, the army and German prisoners of war to reinforce the banks was successful until East Anglia was buffeted by 100 mile an hour gales. In several areas banks gave way but the biggest breach occurred in the bank on the Ouse at Over. Thousands of acres of fertile farmland disappeared under water and



battle began to stop the spread of flood water across even larger areas of the fenland countryside. Water was rushing in a foaming torrent through a 50 metre wide gap at Over and spreading and deepening across the Fens. At Haddenham the water was up to 4 metres deep.

6 Throughout the black night came the dull thunder of the bursting banks, the village alarm of 'she've blowed'. The river is always feminine. In a thousand remote little farmhouses and cottages, islanded beneath wind-shriven willows or leaning poplars, the racing floods covered the black fields overflowed the straight dykes... and leaping upon those lonely homes with all the relentless force of wind and gales, burst open the doors, shattered the ground floor windows... and rushed gurgling and swirling up the narrow staircase.

WENTWORTH DAY

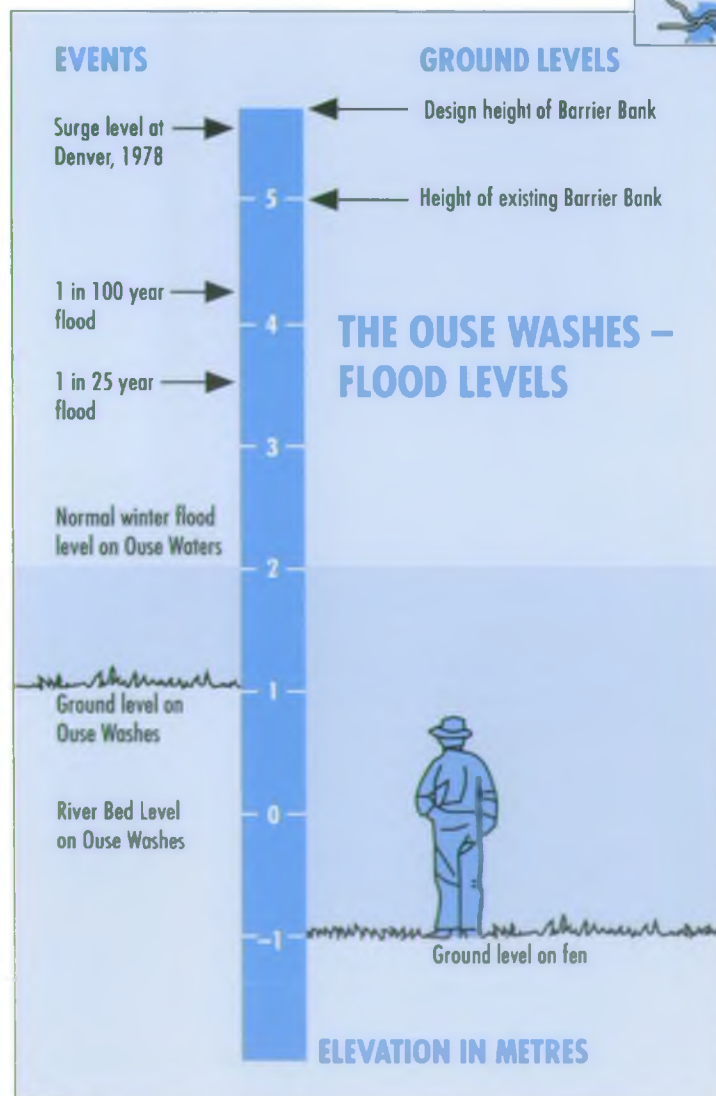
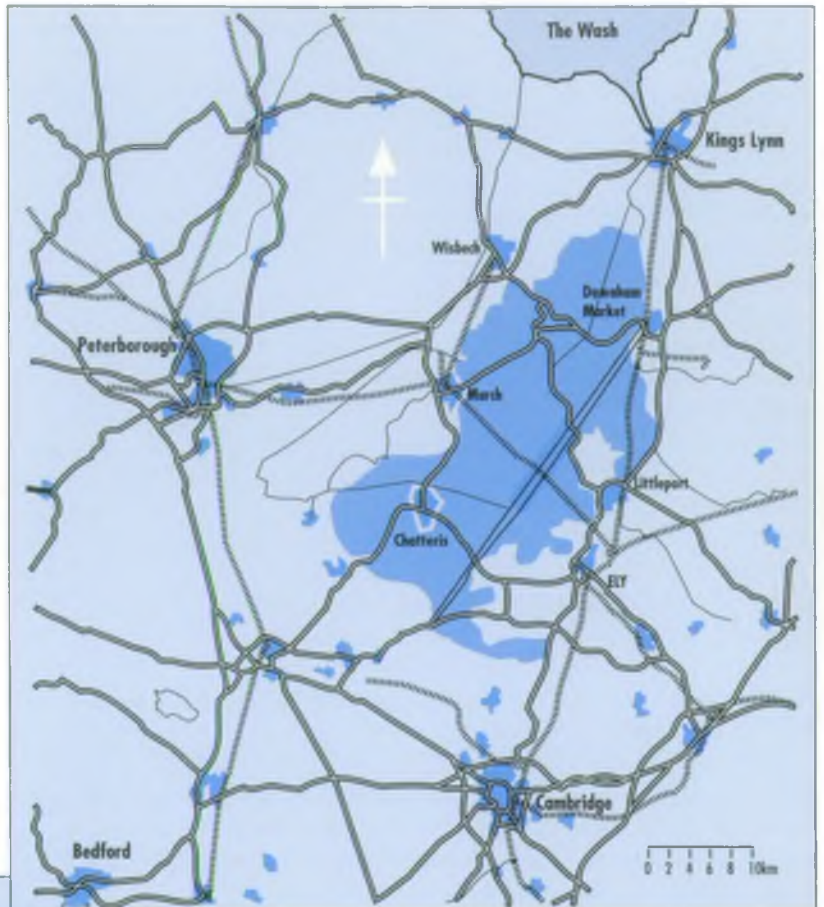
AREAS LIABLE TO FLOOD FOLLOWING A BREACH

 Area of fens liable to flood following a breach of the Barrier Banks

If the Barrier Banks were allowed to totally deteriorate the flooding would be even more extensive than shown. The fens would then flood up to Peterborough and Ely.

Since the 1940s the level of the land has steadily dropped in relation to the sea. The level of the peat Fenland has fallen by around 5m in many places since the Barrier Banks were built and the 'Greenhouse Effect' is predicted to produce a possible annual rise in sea level of 5mm.

The Barrier Banks, which contain the flood overflow from the Ouse Catchment are the key to the very existence of the Ouse Washes and also the effective drainage of the rest of the Fens. Extensive studies have shown that without major repairs there is a severe risk of instability which would lead to the collapse of sections of the banks.



Failure of the South Level Barrier Bank would affect 230 residential properties with flooding up to a depth of 1.8m causing damage valued at £4.2 million. Up to 11,000ha of high grade land would be flooded with crop damage totalling £12 million. When damage to buildings, machinery, commercial properties, road vehicles, road and rail infrastructure and repair to the bank itself are taken into consideration the total potential damage is estimated at some £23 million.

Failure of the Middle level Barrier Bank would inundate a significantly greater area with damage estimated at some £42 million.

THE PROBLEMS

In recent years concern has been expressed about the condition of the Middle Level Barrier Bank and South Level Barrier Bank. A comprehensive study of the Washes was undertaken which highlighted several issues, These include-

- a possibility of localised overtopping due to small subsidences might lead to more serious flooding.
- the construction of the banks could lead to major embankment failure due to deep seated slips whilst in places the steep gradients of the banks could lead to localised surface slips. There were signs that the Hundred Foot river channel is moving and the banks suffer in many places from poor access and consequently difficult maintenance.

- A minimum bank top width for vehicular access of 3m is needed to allow for rapid inspection during flood situations and also to allow maintenance and repair vehicles to get to damaged areas.

The study also took into account the rise in sea levels at Kings Lynn. Proposed improvements make an allowance for a 5mm rise in sea level each year due largely to sea level rise.

A cross section survey revealed there had been a general settlement of the banks of 200 to 300mm over the last 40 years.

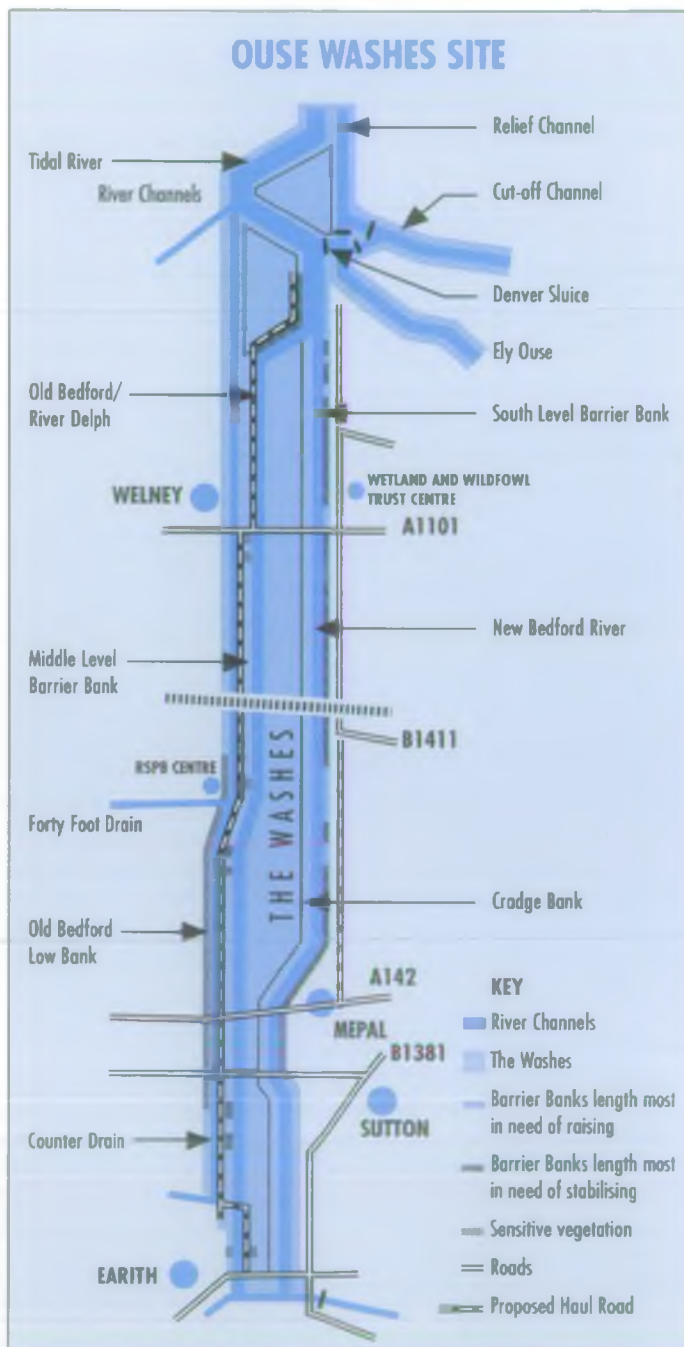
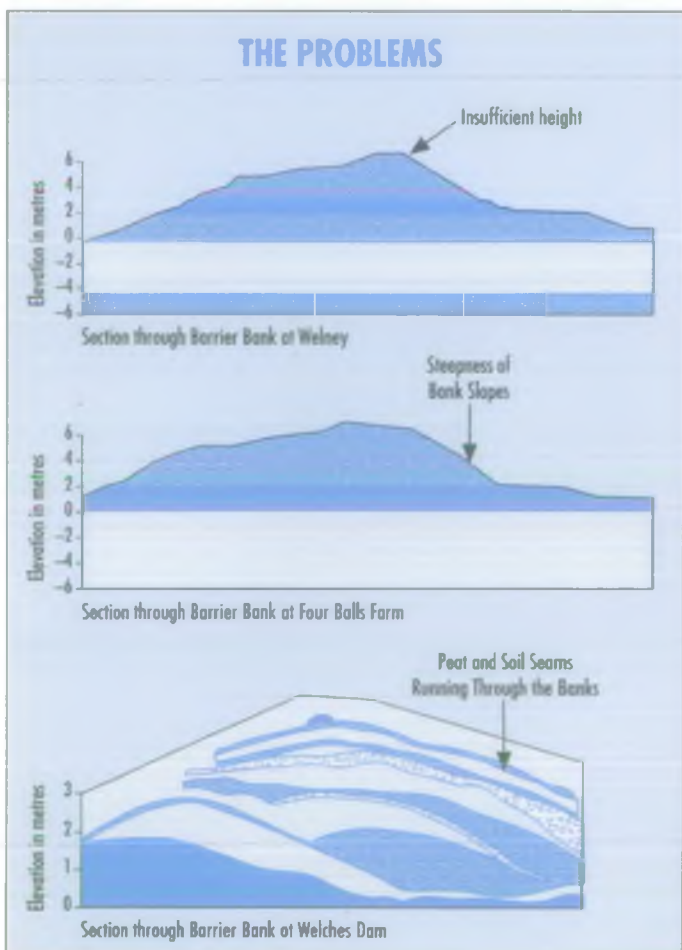
The present scheme seeks to overcome these problems of rising water levels, of deteriorating bank stability, of bank settlement and of problems caused by poor access.

SOLUTIONS

As part of a large study programme using both on site investigation and computer modelling many options were considered including the construction of a tidal barrier. A barrier would be no substitute for the necessary bank raising which is essential to secure present protection on both the Middle Level Barrier Bank and the South Level Barrier Bank.

Following discussions with the English Nature, the Countryside Commission and other conservation bodies it

was agreed that the necessary infill material would be imported rather than acquired by channel dredging and a crest wall option was abandoned on environmental grounds.



MIDDLE LEVEL BARRIER BANK

The favoured option was for engineering works to raise the Middle Level Barrier Bank throughout its length using imported fill and to stabilise by reforming the bank with a 3m wide bank top width. A haul road is being provided along the bank toe for access and for use by construction traffic. This road will also permit future access for inspection and maintenance. Willow and osier planting, where practical, will be carried out to minimise bank erosion.

Estimated cost £13 million.

SOUTH LEVEL BARRIER BANK

Studies showed little actual raising of the South Level Barrier Bank was required except just south of Denver and south of Mepal.

The main work is to strengthen the bank either on the back face if there is no road or properties in the way or by moving the bank top towards the river where there are obstructions on the Fen side. On some isolated stretches additional reprofiling work will occur on the riverside face of the bank.

Estimated cost £8.5 million.

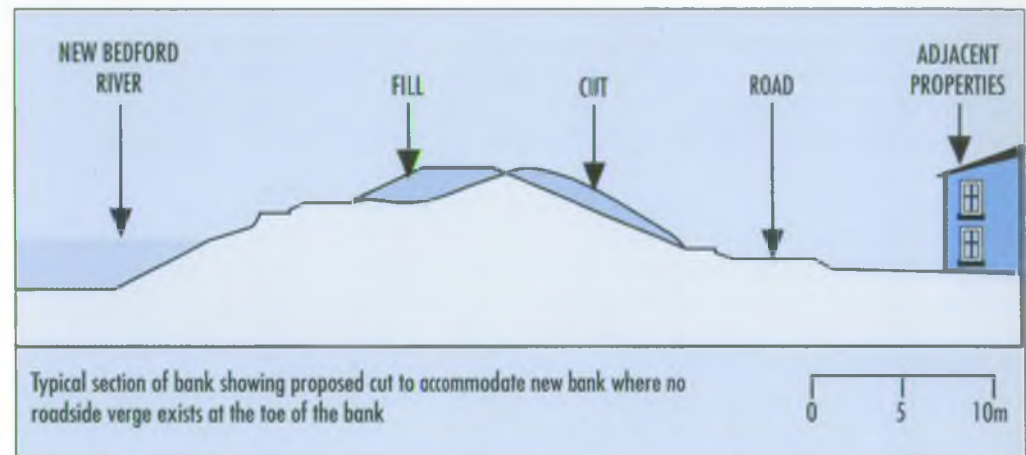
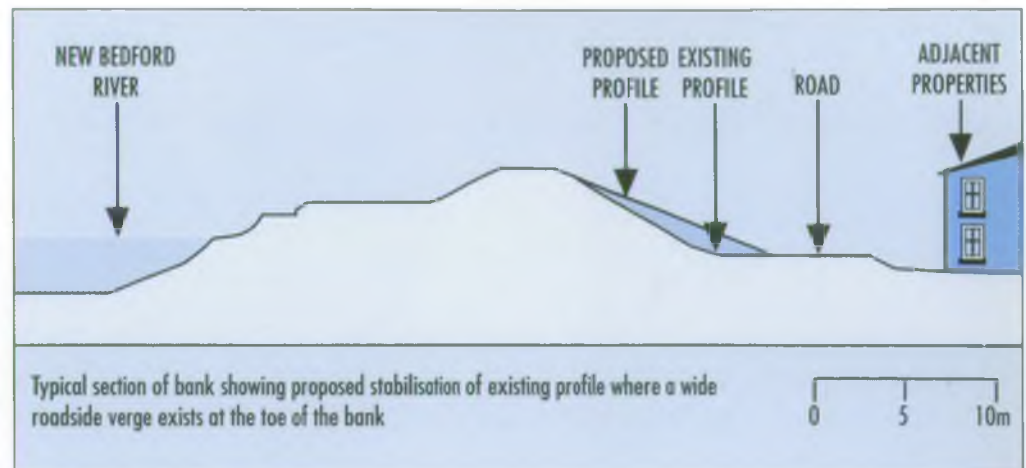
SUMMER FLOODING OF THE WASHLANDS

The increase in the frequency of summer flooding causes concern and measures to alleviate this problem are being investigated. A strategy has been prepared, and an environmental assessment carried out.

THE WORKS

HAUL ROAD

Access is presently available only where roads cross or run alongside the banks. Some 45 km of access roads are needed with the longest single length being 13 km. Roads are built straight onto existing ground and thickness



is varied according to the strength of the underlying peat soils which are very low.

On completion of the improvements the roads will remain, but access will be controlled. Trials are in hand to establish the preferred method of grassing over of these stone roads.

The use of this system of access roads means that only the principal local roads are used by construction traffic and the unclassified roads are not normally used.

BANK WORKS

Top soil is removed and stacked for re-use.

Any unsuitable material is removed from the bank crest and either re-worked and used in the bank toe or removed from site.

Fill material complying with tight specifications is imported to the site and placed and compacted in layers to rebuild the bank to the design profile. The placed material is tested to control the compaction quality.

The bank is then topsoiled and seeded. The seed mix used comprises several species of grasses together with wild flower seeds. The grasses have been selected to balance the need for early germination to protect the newly built bank and the longterm need of providing good grazing. Grazing with cattle or sheep will be the normal method of managing the banks.



Photograph courtesy of M. Rains

THE ENVIRONMENT

There was an option to do nothing to the Barrier Banks but this would have had a profound long term environmental effect on the habitat and on the lives of the people who live on the Fens. With increased flooding, land quality would degenerate with a possible increase in salinity and, given time, the Fens would return to their pre-seventeenth century delta state.

The main environmental effects of the work will be a local temporary disturbance during construction, with a longer term effect resulting from the new haul roads until they grass over. There will be a small, permanent visual change from the heightening and the widening of the banks, but careful selection will minimize any leachate effect from the imported material used to reprofile the banks. Where the banks are improved vegetation is restored immediately. The opportunity has been taken to enhance and extend some hedgerows.

There are several potential areas which will affect local residents and visitors during the construction period. Increased traffic could create noise and dust with short term disturbance to residents of houses living near the works. Users of the Washes, anglers, wildfowlers, bird watchers, land owners, graziers and farmers could all possibly suffer some disturbance.

The effect on wildlife will be a temporary disturbance to birds using the Barrier Banks and berms partly caused by the presence of construction traffic and partly by the change in vegetation as the sward recovers. Short grassland

is less suitable for winter grazing wildfowl (such as widgeon and coot) until it is well established. In areas with long grass and shrubs common birds such as sedge warblers, reed bunting and partridges will be temporarily disturbed but it is expected that the present bird communities will quickly re-establish. The main long term effect on birds will be the loss of the strip of land occupied by the haul roads. Although this will reduce the grazing area for some wintering wild fowl and effect the feeding and nesting habitats for meadow pipits and other species the presence of haul roads are considered unlikely to affect breeding populations significantly.

Fish are affected by river works but recover rapidly and no long term impacts are anticipated. The landscape will see small changes as the banks are heightened and widened but in the vastness of the Fens these changes will not be significant or adverse. Indeed landscape improvements could arise out of the tree planting and establishment of more wild flowers on the banks.



Photographs courtesy of The Wildfowl and Wetlands Trust



The National Rivers Authority

Guardians of the Water Environment

The National Rivers Authority is responsible for a wide range of regulatory and statutory duties connected with the water environment.

Created in 1989 under the Water Act it comprises a national policy body coordinating the activities of 10 regional groups each one mirroring an area served by a former regional water authority.

The main functions of the NRA are:

- | | |
|---|--|
| Water resources | — The planning of resources to meet the water needs of the country; licensing companies, organisations and individuals to abstract water; and monitoring the licences. |
| Environmental quality and Pollution Control | — maintaining and improving water quality in rivers, estuaries and coastal seas; granting consents for discharges to the water environment; monitoring water quality; pollution control. |
| Flood defence | — the general supervision of flood defences; the carrying out of works on main rivers and sea defences. |
| Fisheries | — the maintenance, improvement and development of fisheries in inland waters including licensing, re-stocking and enforcement functions. |
| Conservation | — furthering the conservation of the water environment and protecting its amenity. |
| Navigation and Recreation | — navigation responsibilities in three regions — Anglian, Southern and Thames and the provision and maintenance of recreational facilities on rivers and waters under its control. |

CONSERVATION IN THE ANGLIAN REGION



Guardians of
the Water
Environment



NRA

*National Rivers Authority
Anglian Region*



Fenland lode.



The Anglian Region

The Anglian Region hosts a rich variety of wildlife habitats, flora and landscapes associated with its streams, rivers, ponds, lakes, wetlands, estuaries and coastal waters. Many of these are protected by statutory designations, for example, 75% of the coastline is covered by a conservation and/or landscape designation. Five Areas of Outstanding Natural Beauty fall either partially or wholly within Anglian Region, along with England's newest National Park - the Broads. A fifth of England and Wales' internationally important wetlands, from large estuaries such as the Humber and the Wash, to washlands such as the Ouse Washes, occur within this region. Along with over 700 Sites of Special Scientific Interest and 30 National Nature Reserves there is a very large conservation heritage and resource to protect.

A substantial proportion of the region's aquatic environment and associated land has been subjected to a long history of modification, drainage for agricultural, industrial and residential development. The Anglian Region is the



1910 drainage of the Fens.

most intensively farmed area of the country and the creation of canal like rivers and the drainage of extensive areas of wetland has adversely affected much of the region's natural heritage.

Within Anglian Region there is, therefore, a large conservation role in which the NRA is involved within its remit to both protect areas of value, and undertake rehabilitation and enhancement work.

Conservation and Flood Defence

Flood defence works are of particular importance in Anglian Region because 20% of the region is below high tide level, making it vulnerable to tidal and freshwater flooding. In 1953 over 300 people died and more than 8000 hectares of land were inundated in the East Coast floods, with the result that vast tracts of agricultural land were made temporarily infertile by saline intrusion.

Conservation is a dominant factor in the decision and planning of flood defence programmes. Each proposed scheme undergoes an environmental assessment which involves examining the impact on the environment of the different options. This process is designed to identify local needs, sensitive environmental issues, and to collate the differing views of the public and environmental bodies. Through this, we are able to decide on a strategy that is not only effective, but sympathetically meets the needs of the environment.



The 1953 floods.

Guardians of the Water Environment



Heacham beach recharge in progress.

The use of soft engineering options such as beach recharge (Heacham, Norfolk) and managed retreat have helped ensure that the need to protect people and property from flooding are balanced with the need to protect our coastal and riverine environment by creating a defence which is both natural and effective.

Conservation and Water Resources

The NRA is required to manage water resources not only to meet the important demands of life in the aquatic environment but also to meet the legitimate demands of abstractors of water. In most instances these demands are in competition and the NRA has the job of striking the right balance between the two. Our task is particularly difficult in Anglian because of the region's low rainfall and high evaporation rates.

The Region contains some of the largest and most important areas of fen and marsh wetland in Britain, for example the Fens and the Norfolk Broads. These remaining wetlands are the remnants of ancient swamps which once covered much of lowland Britain.

Many plant and animal species depend for their survival on these aquatic/semi-aquatic habitats, and have evolved special adaptations to cope with the wet conditions.



Fen Raft Spider.

Courtesy of Arthur Rivett.



Typical wetland site.



Dragonfly.

Courtesy of the Wildfowl & Wetlands Trust.



Spray irrigation.

Conservation and Water Resources personnel work together to ensure that all applications for water abstraction consider possible impacts on the environment, and licences are only issued where there will be as little adverse effect on sensitive areas as possible.

Catchment Planning

River catchments are subject to increasing use by a variety of activities. Many of these interact and some conflicts arise. The competing requirements and interests of users and beneficiaries must be balanced.

The NRA is in the process of undertaking a rolling programme of plan development for catchments in Anglian Region. The process involves the NRA liaising with external bodies and using its statutory powers to produce long-term strategies for the protection of rivers, lakes, coastal and underground waters.

The plans identify vulnerable sites which require sensitive management in order that we can protect, and where possible, enhance these areas for the benefit of future generations.



Welney Washes.

Planning

Under Section 16 of the Water Resources Act 1991, the NRA has a statutory duty to take into account the conservation and enhancement of the water environment when commenting on planning applications. This work is carried out by the Area conservation staff who carefully consider applications aided by a comprehensive set of standardized responses.



Surveying

To function effectively it is important that the NRA is able to classify and monitor the conservation resource. In Anglian Region we meet this requirement by surveying our rivers, coastline and estuaries and then processing the data to monitor and increase awareness.



Teal.



Flowering Rush.

Courtesy of the Wildfowl & Wetlands Trust.

Rivers Environmental Database System - REDS

REDS is a 3 year survey of plants and bird life present within the region's 6000km of river. By surveying the flora, fauna and features within a river, its banks and the land close by, important features which need protecting can be highlighted and habitats to be rehabilitated and enhanced can be identified.

Coastal Wildlife Survey

In a scheme similar to REDS, a survey of the estuaries and coastline is also being undertaken. The survey provides the NRA with detailed habitat, botanical, breeding bird and wintering waterfowl data. The survey is used to ensure that NRA works are carried out in such a way so as to protect and enhance the coastal environment.

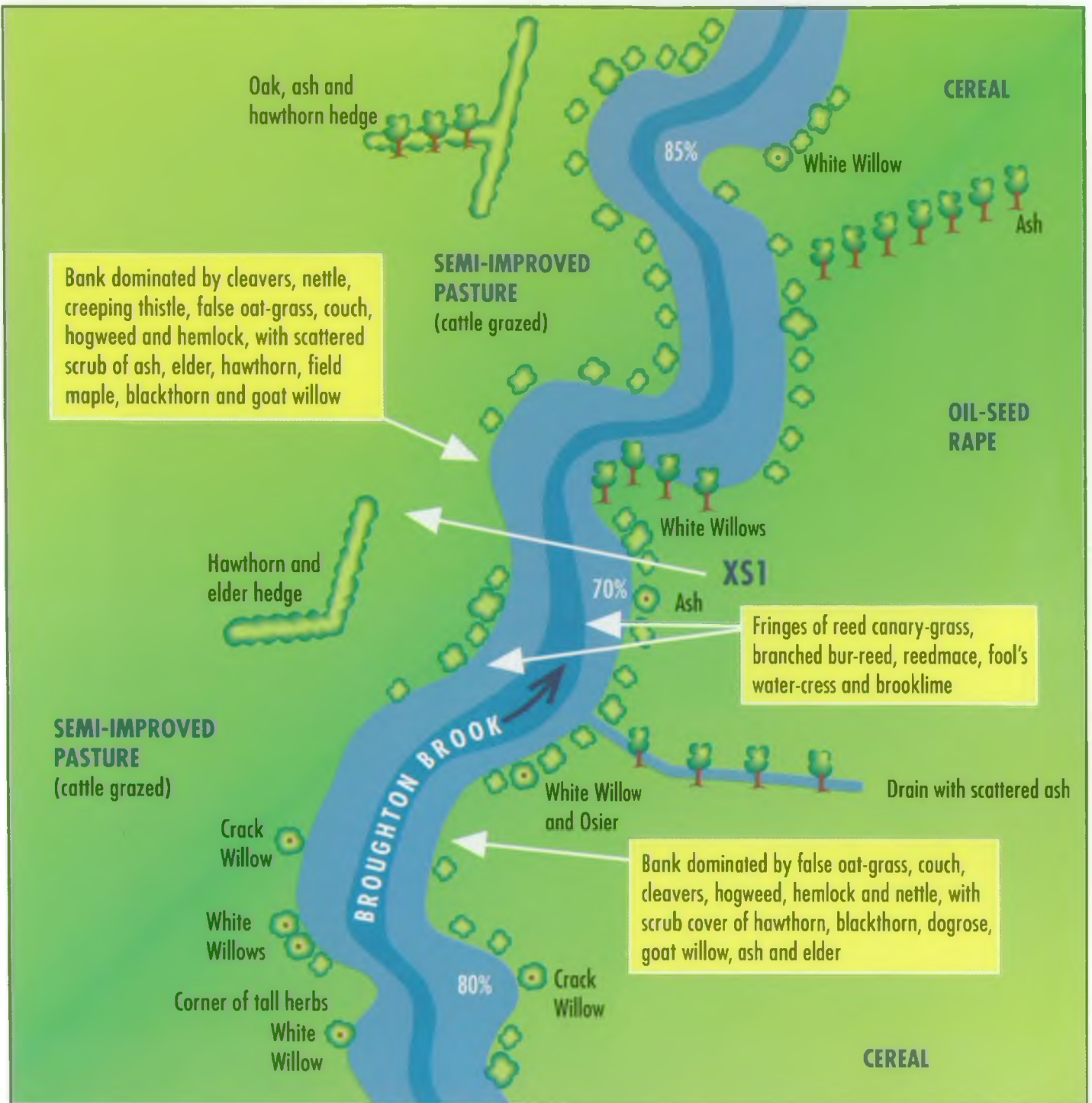


River corridor survey.

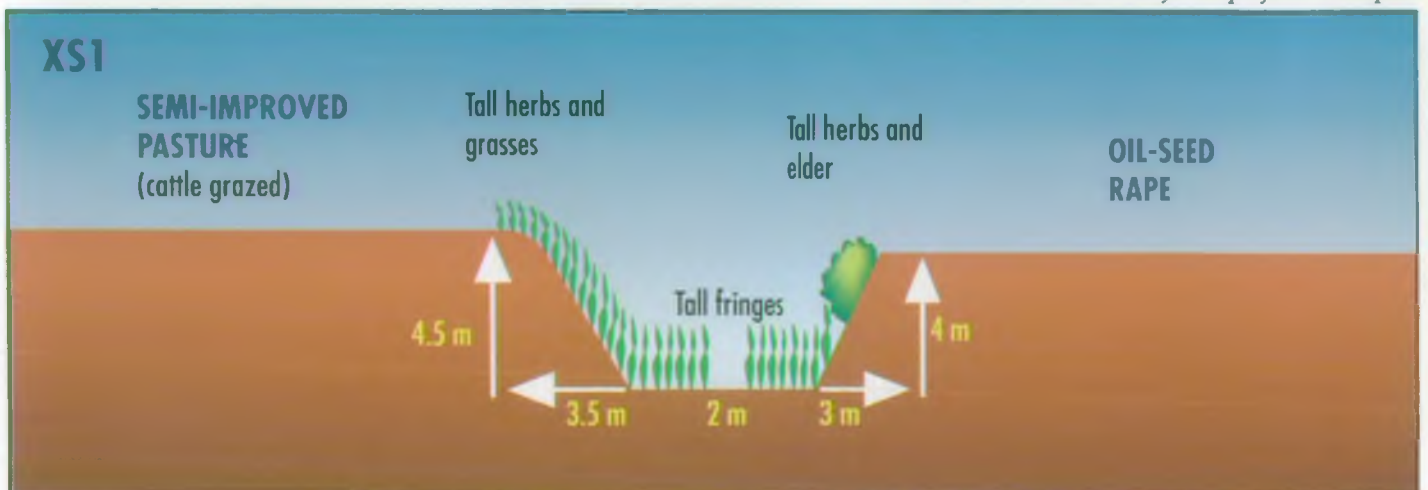


Avocet.

Guardians of
the Water
Environment



River corridor survey: simplified example.



Water Quality and Fisheries

Routine river monitoring by both chemical and biological sampling play an integral part in protecting and conserving our rivers. Healthy rivers mean healthy fish. Fish surveys are conducted to ascertain fish populations, diversity, size and health. Fish populations in estuaries and coastal waters are also monitored.



Fish survey.



North Norfolk heritage coast at Cley.

Conservation Sites Register

In order to consider the effects of all work for which we are responsible it is imperative that we keep records of all sites of conservation value, both of natural and cultural interest. We therefore maintain and up-date a computer database of all notified sites of nature conservation, archaeological and architectural interest. Couple this with versatile mapping technology, and we have the ability to store, retrieve and present data quickly, in a form understandable by all personnel.

Collaborative Projects

We have close links with many outside bodies concerned with conservation. These range from national statutory bodies (English Nature, Countryside Commission, County Councils, English Heritage) to local voluntary bodies (County Wildlife Trusts, Royal Society for the Protection of Birds, Wildfowl and Wetlands Trust).

The NRA welcomes participation in collaborative projects with these, and other bodies. Recently, such projects have included otter surveys of the rivers of Bedfordshire, Cambridgeshire and Northamptonshire and management plans for a number of NRA owned sites.

Education and Promotion

NRA representatives are regularly interviewed for television and radio and often undertake talks. Through this and its presence at county shows, exhibitions and other high profile events, the NRA seeks to promote, inform and play a positive role in increasing public awareness.

The NRA also liaises with statutory and voluntary bodies for consultation purposes and on the implementation of conservation work throughout the region.



Educational display.

The National Rivers Authority

Guardians of the Water Environment

The National Rivers Authority is responsible for a wide range of regulatory and statutory duties connected with the water environment.

Created in 1989 under the Water Act it comprises a national policy body coordinating the activities of 8 regional groups each one mirroring the areas served by former regional water authorities.

The main functions of the NRA are:

- | | |
|---|--|
| Water resources | — The planning of resources to meet the water needs of the country; licensing companies, organisations and individuals to abstract water; and monitoring the licences. |
| Environmental quality and Pollution Control | — maintaining and improving water quality in rivers, estuaries and coastal seas; granting consents for discharges to the water environment; monitoring water quality; pollution control. |
| Flood defence | — the general supervision of flood defences; the carrying out of works on main rivers; sea defences. |
| Fisheries | — the maintenance, improvement and development of fisheries in inland waters including licensing, re-stocking and enforcement functions. |
| Conservation | — furthering the conservation of the water environment and protecting its amenity. |
| Navigation and Recreation | — navigation responsibilities in three regions — Anglian, Southern and Thames and the provision and maintenance of recreational facilities on rivers and waters under its control. |

Other wildlife

The nature reserve is not only an important place for birds. Dragonflies and damselflies can be seen hunting over the ditches and rivers in the summer, including the red-eyed damselfly and the rare scarce chaser.

Over 300 species of plant have been found on the reserve. The fringed water lily is abundant in the rivers and plants such as flowering rush and arrowhead can be found in the ditches and washes.



Wigeons and coot

C.H. Gomersall (RSPB)



G. McCarthy (RSPB)

Redshank

The Wildlife Trust is a charity working in Cambridgeshire, totally committed to protecting your local countryside and all its wildlife. We form part of a nationwide network of Wildlife Trusts, which collectively manage 2,000 of the wildest places in the UK as nature reserves.



The Wildlife Trust for Cambridgeshire, Enterprise House, Maris Lane, Trumpington, Cambridge CB2 2LE. Telephone: 01223 846363.

Registered charity no 1000412.

The Royal Society for the Protection of Birds is the charity that takes action for wild birds and the environment. It has joined bird and habitat conservation organisations worldwide to form a global partnership called BirdLife International.

RSPB, The Lodge, Sandy, Bedfordshire SG19 2DL. Telephone: 01767 680551



THE ROYAL SOCIETY FOR THE PROTECTION OF BIRDS

This leaflet has been printed with support from East Cambridgeshire District Council.



**HOUSE WASHES
NATURE
RESERVE**

Cambridgeshire

Cover: Snipe by M.W. Richards (RSPB)

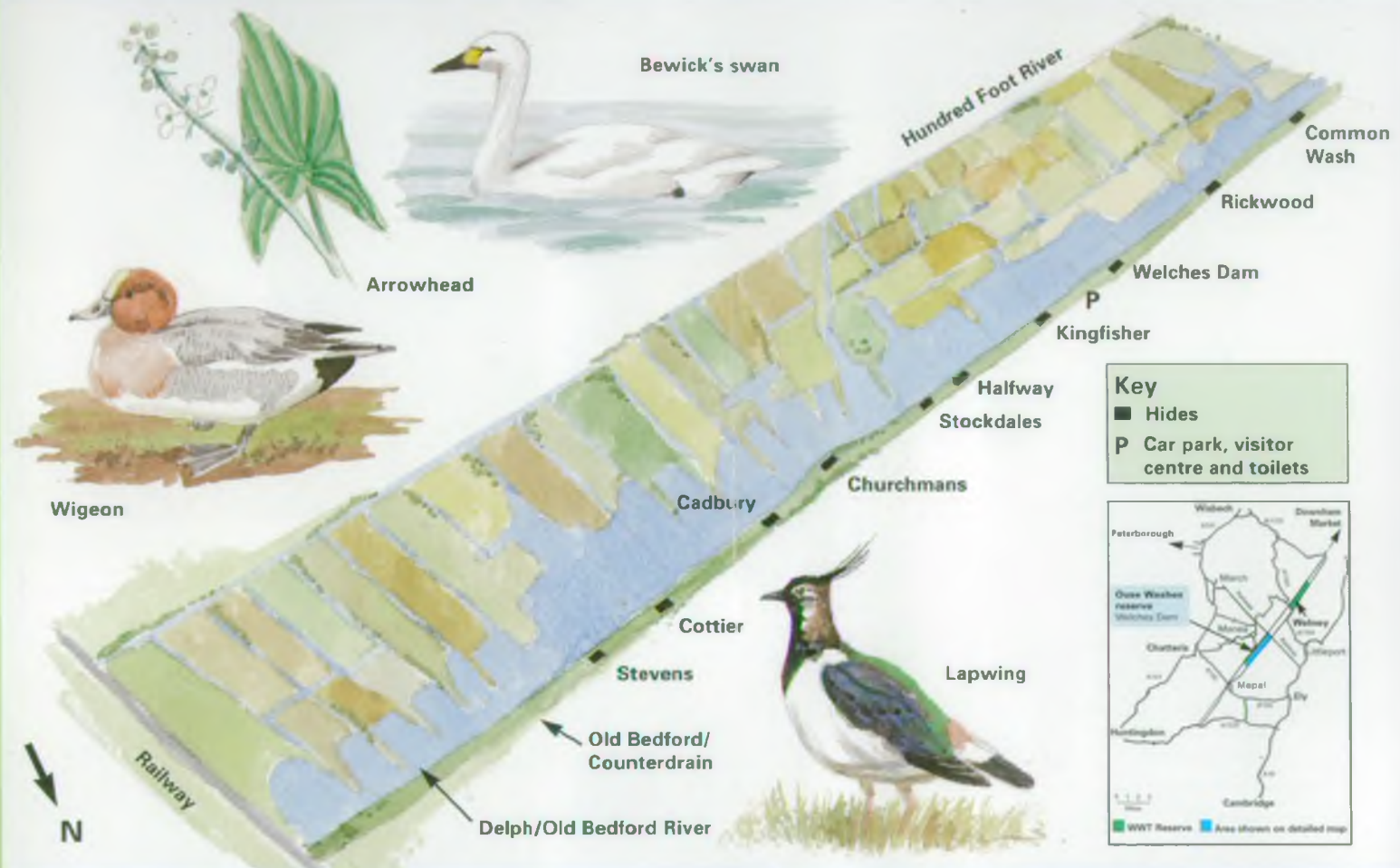
Welcome to the Ouse Washes Nature Reserve

Visitor information

- The car park, toilets and hides are always open. The visitor centre is open daily between 9 am and 5 pm.
- There is wheelchair access to one hide at Welches Dam.
- As dogs can cause disturbance to the wildlife and sheep they are not welcome on the reserve (guide dogs excepted).
- Stout footwear is advisable at all times.
- Between 1 September and 31 January shooting takes place on privately owned washes. This may cause some disturbance to birdwatching, particularly on Saturdays.

Reserve facts

- The Ouse Washes Nature Reserve is owned jointly by the RSPB and the Wildlife Trust for Cambridgeshire.
- The reserve covers over 1,000 hectares of wet grassland.
- The land is managed by the RSPB. In the summer, reserve staff look after over 2,000 cattle which graze the washes to keep grass and sedges short.
- Over 75 km of ditches are managed on the reserve because they are home to many plants and insects.



Summer washes

After the winter floods subside, ducks and wading birds can nest in the fields. Nine species of duck breed here including gadwall, shoveler, garganey and teal. They raise their young in the ditches that separate the fields. Redshanks, snipe and lapwings nest among the grasses. The watertable is kept high to keep the fields damp. These are ideal for wading birds as the soft ground allows them to find food easily.

Fields such as these have become scarce in Britain and, consequently, the number of breeding wading birds has declined dramatically in recent years. This is why the reserve is so important.

Winter flooding

In the winter the Washes are transformed by flooding. Over 30,000 wigeons and large numbers of Bewick's swans, teals, shovelers, pintails and gadwalls use the Washes, making

it one of the most important places for wildfowl in Britain. The Bewick's swans and smaller numbers of whooper swans leave the reserve during the day to feed on the surrounding arable fields and return at dusk to roost.

We hope you enjoy your visit

INFLUENCING POLICY

We actively campaign and advise key decision-makers. In 1993/94, we published 15 major policy reports on topics from Europe's threatened peat bogs to the future of the marine environment.

Although our focus is on birds and the environment, our policy interests range from agriculture to energy, transport and fisheries.

We promote changes to legislation to benefit the environment, such as the Wildlife and Countryside Act 1981.

Our parliamentary newsletter is received by over 300 parliamentarians and advisers.

We have had a major influence on agricultural policy through our Campaign for the Countryside.

We deal with 400 planning cases each year and actively advise local authorities.

Our influence extends abroad. In 1993/94, The RSPB helped pioneer BirdLife International conservation projects in over 30 countries worldwide.

The RSPB's headquarters is in Sandy, Bedfordshire. We have country offices in Northern Ireland, Wales and Scotland and a network of nine regional offices in the UK.

The RSPB, The Lodge, Sandy, Bedfordshire
SG19 2DL Tel: 01767 680551 Fax: 01767
692365

The RSPB leads action for bird conservation by:

- promoting the conservation of wild birds and their habitats
- researching conservation issues and developing policies and practical actions to protect important wildlife habitats
- informing and involving our 860,000 members in conservation issues
- working with central and local government to create solutions to conservation problems
- working with industry, landowners, the public and other conservation bodies to provide a better future for wildlife and the environment
- buying and managing land as nature reserves
- placing strong emphasis on youth and education.

Despite our conservation successes, many of the UK's birds are still at risk. The populations of 24 species have halved over the last 25 years, including some of the UK's best known birds such as the skylark, song thrush and grey partridge.

Your support is vital to help secure a better future for birds and other wildlife.



THE ROYAL SOCIETY FOR THE PROTECTION OF BIRDS

Registered charity no 207076



35/029/95



RSPB fact file

The Royal Society for the Protection of Birds is the charity that takes action for wild birds and the environment.

We are the largest wildlife conservation charity in Europe with over 860,000 members. We depend on support from our members and the public to achieve a healthy environment, rich in birds and other wildlife. In 1993, The RSPB joined with bird and habitat organisations worldwide to form a global partnership called BirdLife International.

September 1994

SUPPORTING CONSERVATION

With over 860,000 members, The RSPB is the largest wildlife conservation charity in Europe.

Each year, 7,000 volunteers give us their time, including 20,000 days on our reserves – equivalent to two working lives or 80 years.

The YOC, our junior membership section, has over 130,000 members – it is the largest wildlife club for young people in the world.

We have the support of over 170 members groups, 900 school YOC groups and 250 community YOC groups.

INFORMING AND EDUCATING

We handle over 200,000 enquiries from members and the general public each year.

Over a single year, we generate over 7,000 newspaper and magazine references.

Birds, our members magazine, has a readership of 1.8 million.

Volunteers assist in running a varied programme of over 25,000 adult/youth events for local members and the general public each year.

Over 50,000 children visit our reserves on education programmes each year.

All 37,000 schools in the UK receive our colourful education newsletters at least three times a year.

MANAGING PLACES FOR NATURE

We manage one of the largest conservation estates in the UK – over 130 nature reserves including important habitats such as lowland heath, wet grassland, estuaries and reedbeds.

Our reserves cover over 83,000 hectares – equivalent to over twice the size of the Isle of Wight.

Our reserves help to protect 62 of the 77 rarest or most threatened breeding birds in the UK.

RSPB reserves received one million visitors during 1993/94.

Disabled facilities are provided on most of our main visitor reserves.

USING RESOURCES WISELY

In 1993/94, supporters provided £30.1 million for the Society's work – including over £8 million in legacies, over £10.5 million from membership subscriptions, over £6 million from fundraising and over £1.5 million from the corporate sector.

We seek the best use of our supporters' funds. In 1993/94, we spent around 82% of our net income on conservation work.

Our 'greening' policy helps us manage the environmental impact of all our activities – from paper use to energy conservation.

We employ around 800 staff with a wide range of skills – reserve managers to computer analysts, scientists and planners.

ACHIEVING RESULTS

Careful RSPB management enabled the avocet to return to this country as a breeding species in 1947, after an absence of 150 years.

RSPB protection schemes have helped the osprey increase to over 80 pairs since its return to the UK in 1954.

We were instrumental in the successful return of the white-tailed eagle to Scotland in 1985 following its extinction in the early 1900s.

RSPB reserves provide breeding sites for 12.5% of Britain's seabirds on small islands and along 43 km of cliff.

The RSPB manages about five per cent of Britain's lowland wet grassland and intertidal areas. These areas provide refuges for a quarter of the UK's wildfowl and wading bird populations in mid-winter.

LEADING RESEARCH

All our work is based on careful research. In 1993/94, we spent over £2 million on biological research.

We have pioneered the use of satellite imagery in our research work to predict bird populations.

We have revolutionised the use of electronic tracking devices to provide vital information about bird movements and migrations.

The Wildlife Trust for
Bedfordshire and Cambridgeshire
FREEPOST CB 251
CAMBRIDGE
CB2 2BR

THE WILDLIFE TRUST WORKS FOR A BETTER FUTURE FOR WILDLIFE AND PEOPLE BY:

- Saving and managing areas of the countryside important to wildlife
- Protecting rare species
- Creating a greater appreciation of wildlife and the need for conservation in our everyday lives
- Involving people in our work
- Campaigning for realistic policies to safeguard species of wildlife and their habitats
- Providing more opportunities for all to enjoy wildlife and wild places in towns and countryside
- Advising individuals, landowners and community groups on all aspects of wildlife conservation

THE WILDLIFE TRUST IS THE ONLY ORGANISATION IN CAMBRIDGESHIRE WHOLLY CONCERNED WITH ALL ASPECTS OF PROTECTING WILDLIFE



For further details contact:
Enterprise House, Maris Lane, Trumpington, Cambridge CB2 2LE
Telephone: 0223 846363
Bridge House, Town Bridge, Peterborough, PE1 1HB
Telephone: 0733 890419

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Part of a nationwide network of county Trusts



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Putting *wildlife* on the map
in Cambridgeshire



NO STAMP
REQUIRED
BUT IF YOU
USE ONE WE
SAVE POSTAGE

JOIN US.....

The Wildlife Trust represents people living in Cambridgeshire, people who love the countryside and its variety of scenery and wildlife, people who want to protect it.

Q WHAT IS THE WILDLIFE TRUST?

The Wildlife Trust is a voluntary organisation working in Cambridgeshire, totally committed to protecting your local countryside and its inhabitants.

Q HOW DOES IT DIFFER FROM OTHER ORGANISATIONS?

We form part of a nation-wide network of county Trusts. Collectively, we manage two-thirds of the nature reserves in the UK, ranging from a 1-acre site in an urban area to 400 acres of ancient woodland. If it is of wildlife value we are concerned with its protection – *no other organisation can match this claim.*

Q WHAT DOES THE TRUST DO?

We manage 60 nature reserves in Cambridgeshire, covering 2,500 acres – including 330 acres of ancient woodland at Brampton, home to a huge variety of flowering plants, butterflies and birds; and the Ouse Washes, one of the most important wetland sites in Europe for wintering and breeding birds.

We actively work to conserve rare species such as the barn owl, otter and dormouse. We screen all planning applications and fight to save sites where wildlife and the countryside are threatened. The Trust works together with farmers, land-owners, local authorities and businesses, community groups and schools for the benefit of wildlife and the enjoyment of people.

Q IS MY SUBSCRIPTION IMPORTANT?

Yes, it is vital. Every member increases the voice of the only organisation in Cambridgeshire which has the support, ability and expertise to effect change and protect our diminishing countryside. By becoming a member you can have peace of mind that you are positively contributing to the wildlife where you live.

Q AS A MEMBER CAN I HELP?

Yes, from practical work on a reserve, to raising funds or alerting the Trust to any potential threat to wildlife where you live. Also children, the custodians of the future, may become involved by joining Wildlife WATCH which organises outings and activities throughout the year.

Q WHAT DO I GET FOR BEING A MEMBER?

Whether you play an active role, or simply enjoy being a caring member, you will receive three mailings a year which contain our local wildlife magazine, full of local issues, places and events, and *Natural World*, the national magazine which gives a global view of conservation. You are welcome to take part in all our organised events, walks, talks and activities.

Q WHY SHOULD I BOTHER?

Because you know that it is only by backing an organisation which has influence that you can play your part in protecting the natural environment that you value.

NOW YOU KNOW WHY YOU SHOULD JOIN...

Simply fill in the application form and return it to us with your payment. Alternatively, you can join now by ringing our Membership Secretary on 0223 846363 and quoting your Access or Barclaycard number.

At 35p a week, membership of The Wildlife Trust offers real value for wildlife and people.



ACT NOW

I/We would like to join The Wildlife Trust. The fees listed below are minimum annual rates, if possible, please give more.

- FAMILY and WATCH £26
 - JOINT £20
 - INDIVIDUAL £16
- (please tick)

Join us by phone! If you can't wait, phone...
0223 846363 to join immediately!
Please have your credit cards handy.

TITLE	INITIALS	SURNAME(S)	
ADDRESS			
POSTCODE			
NAMES OF CHILDREN (UNDER 18)		DATE OF BIRTH	
PHONE NO.			

Please enrol me/us	£
I enclose a donation	£
Total amount	£

- I/We enclose cash/cheque/PO
- Please debit my/our Access/Visa

Account No.

Expiry Date

Signed

T-Shirt size XL L M S

- Please send me details on**
- Paying by direct debit
 - Covenanting my subscription over the next four years enabling the Trust to reclaim the tax and increase the value of my subscription at no expense to me.
 - Group/School/Life/Business membership

Where did you obtain this leaflet?

THANK YOU FOR JOINING

THE OUSE

The major navigation network in the region it encompasses some of the most popular stretches of river in the region. Navigable from Bedford to the Wash and the Ely Ouse from Cambridge to the tidal limit at the most famous land drainage structure in Britain—the Denver Sluice at Downham Market in Norfolk—it encourages boaters to explore some of the most traditional landscapes of East Anglia.

In an area rich in history and visual appeal the river flows through picturesque market towns such as St Neots and St Ives and the centre of the fenland city of Ely with its majestic cathedral dominating the skyline from all directions.



Details of regional requirements for the *registration and licensing of craft* to use these waterways are available from the National Rivers Authority, Anglian Region, Kingfisher House, Goldhay Way, Orton Goldhay, Peterborough PE2 5ZR.

For details about *boating and local facilities* please contact marina or boatyard operators in the appropriate area.

NAVIGATION



The Anglian Experience



NRA

National Rivers Authority
Anglian Region

Published by the Public Relations Dept.
National Rivers Authority, Anglian Region,
Kingfisher House, Goldhay Way, Orton Goldhay,
Peterborough PE2 5ZR.

P52/3/93

THE ANGLIAN EXPERIENCE

The waterways of the eastern counties provide a wealth of navigable enjoyment for both the enthusiast and the first time boater.

Uncrowded rivers flow through nearly 320 miles of rural tranquillity bringing the individual in touch directly with some of the most unspoilt and naturally rich water environments in Britain.

From the Humber in the north to Essex in the south these hundreds of miles of recreational waterways are managed by the Anglian region of the National Rivers Authority, Europe's leading environmental protection agency.

For both visitors and residents the region's river systems have an individuality and sense of freedom which continue to attract growing interest, swelling the number of craft registered in the area and bringing the Anglian boating experience to an ever widening audience.

THE RIVER ANCHOLME

The Ancholme is navigable from its entrance from the River Humber at South Ferriby to Harlem Hill Lock at Snitterby. During its course it flows through the market town of Brigg southwards towards Market Rasen.



THE RIVER WELLAND

Rising west of Market Harborough in Leicestershire the Welland is one of the most interesting watercourses in the region, navigable from just below Stamford to Fosdyke Bridge near its outfall into the Wash about 35 miles away.



The navigation in the Stamford to Peakirk length dates back to Roman times and the remains of a Roman canal can still be seen north of the river between Uffington and Stamford. This route linked to the Car Dyke which runs south to the cathedral city of Peterborough and formed part of the former navigation between Lincoln and the Fens 2,000 years ago.

For most of its length the river runs above the level of the surrounding countryside between raised flood banks which protect small villages and the rich agricultural fenland from flooding.

THE RIVER NENE

The River Nene is a particularly important navigation as it links the Grand Union Canal to the Middle Level and the sea, a distance of more than 90 miles.



A high amenity river flowing through Northamptonshire, Cambridgeshire, and Lincolnshire, the Nene gives contrasting views of eastern England including numerous traditional stone villages resplendent with their pastoral architecture and quiet country churches.

Peterborough dominates the route through Cambridgeshire with the cathedral visible on the horizon across the fenland landscape. The Nene was tidal to Peterborough until the construction of a tidal lock and sluice at the Dog-in-a-Doublet in 1937.

The tidal Nene flows through parts of Lincolnshire to the busy port of Wisbech with its Dutch style of waterfront architecture and the new port at Sutton Bridge before entering the Wash between two towers which resemble lighthouses.

