

A Guide to Common Reeds

(Phragmites australis)



The Common Reed is a perennial flood-tolerant grass. It is distributed throughout Europe, Africa, Asia, Australia and North America. The reed is valued for its commercial uses and the reedbeds as important wildlife habitats.



Chichester Harbour Conservancy
Area of Outstanding Natural Beauty

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Reeds can be found in the most unexpected places!



Common Reed

Reeds may be established from seed, but spread mainly by a rhizomatous root that extends both horizontally and vertically.

The green growth of the plant provides the rhizome with food and oxygen during the summer. During the winter the hollow, dead stem behaves like a 'snorkel', allowing the rhizome to survive in waterlogged conditions.

Reedbeds

Reedbeds are defined as wetlands that are dominated by the common reed, *Phragmites australis* and where water levels are at or above ground level for most of the year. There are broadly two types of reedbeds: reed swamps and reed fens.

Reed swamps normally have 20cm or more surface water during the summer. They have little botanical value because reeds are almost the only plant that grows in them. However, they are important for the invertebrates and birds that use them as a place of shelter as well as a source of food. Reed fens are drier during the summer months and have a wider range of plant species growing in them.

The Threats

Reedbeds freely colonise low-lying flood and coastal plains. They grew extensively in eastern England, in particular, until the 17th century when huge drainage schemes were undertaken to create more farmland. Today there are approximately 5,000ha of reedbeds in the United Kingdom, the largest area of reedbed



Spreading reeds

Langstone Mill Pond



being the Tay estuary in Scotland, which is 410ha. However, very few are greater than 20ha in size and most are fragmented into areas of less than 1ha. UK reedbeds are globally important because they are some of the most westerly-located in Europe.

Reedbeds are in decline due to water pollution, land drainage and excessive water extraction. Important reedbeds that still exist in low-lying areas of the East coast are threatened by rising sea levels. Estimates of reedbed habitat loss may be as high as 45% since 1945. It is therefore intended that 1,200ha of new reedbeds should be created in the UK by the year 2010*.

Management

Reedbeds need to be managed according to whether the reeds are grown as a crop, for example for thatching, or for their wildlife value. Lack of management results in eventual succession to scrub and woodland. To maintain a good stand of reeds, water levels should be kept at an appropriate level. A regime of rotational cutting and burning will prevent a layer of litter building up and so improve the quality of the reed.



Bittern numbers are declining partly due to the loss of reedbed habitat

Reedbed Ecology

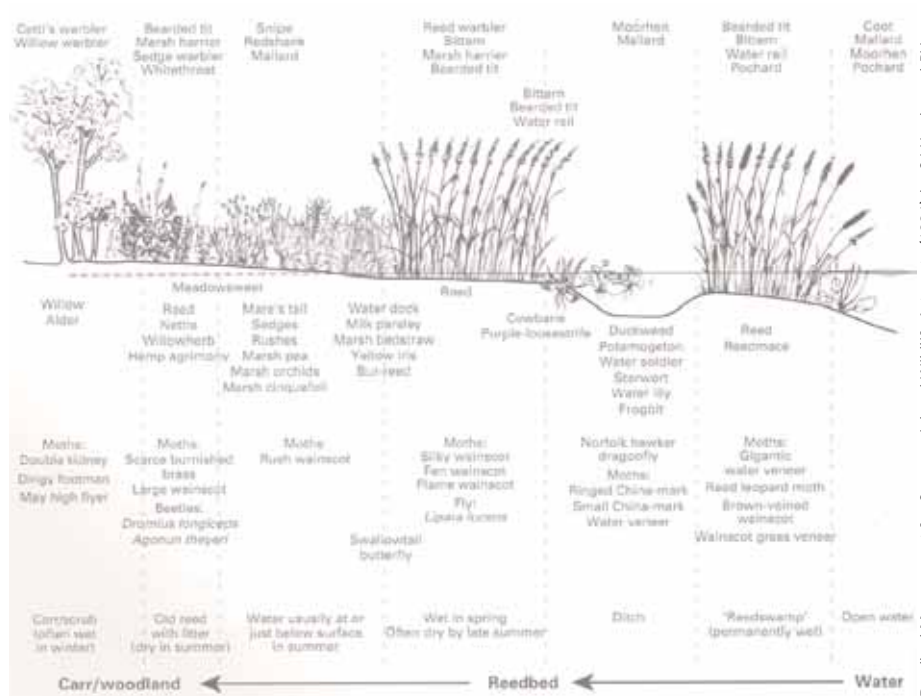
The diagram below is an illustration of the natural succession of reedbeds, enhancing the diversity of plant life and subsequently other living species. Reedbeds can be managed to maintain this diversity.

Examples of wildlife associated with a managed reedbed

Birds

Probably the most well known bird dependent on extensive stands of reeds for nesting and feeding, is the Bittern (*Botaurus stellaris*). The Bittern's preferred food source is the eel, though it will also eat fish and amphibians. Habitat disruption prevents the migration of eels to and from breeding sites, so reducing the stock. By 2001 it was estimated that only 30 pairs of this secretive bird were resident in the UK.

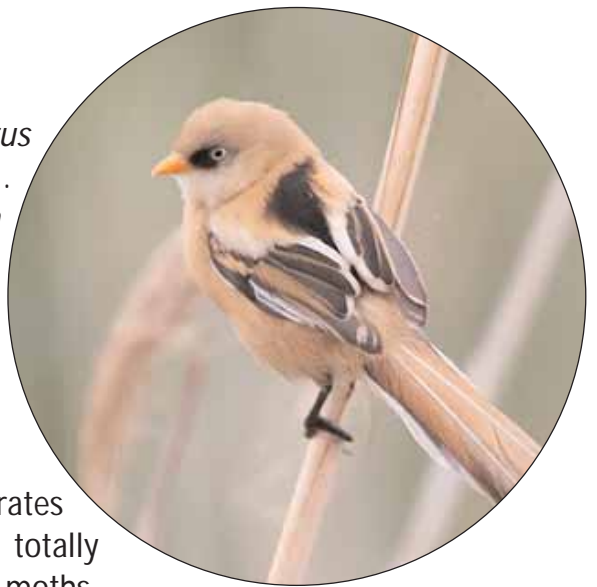
The Bittern is one of four bird species that are highly dependent on reedbeds. The



From Reedbed Management for Commercial and Wildlife Interests (1996) by C.J. Hawke and PV Jose, RSPB. Reproduced by kind permission of Carl Hawke

*The UK Biodiversity Action Plan for reedbeds

others are the Reed Warbler, Bearded Tit (*Panurus biarmicus*) and Marsh Harrier (*Circus aeruginosus*). Reedbeds are also the habitat of Cetti's Warbler (*Cettia cetti*), Reed Bunting (*Emberiza schoeniclus*), Corn Bunting (*Miliaria calandra*), Swallow (*Hirundo rustica*), starlings, wagtails, wrens and several raptors that roost in the reeds during the winter.



Invertebrates

In the UK there are around 700 species of invertebrates associated with reedbeds, 40 of which are known to be totally dependent. There are also at least nine reed-specific moths, several of which are Red Data Book species. These include the Red Leopard Moth (*Phragmataecia castanaea*) and the internationally rare Fen Wainscot Moth (*Arenostola phragmitidis*). Beetles, flies, spiders, wasps, crickets dragon/damsel flies and aphids can be found in abundance and are an essential food source for birds. Freshwater invertebrates will provide food for fish and amphibians as well as assisting in the breakdown of underwater detritus.

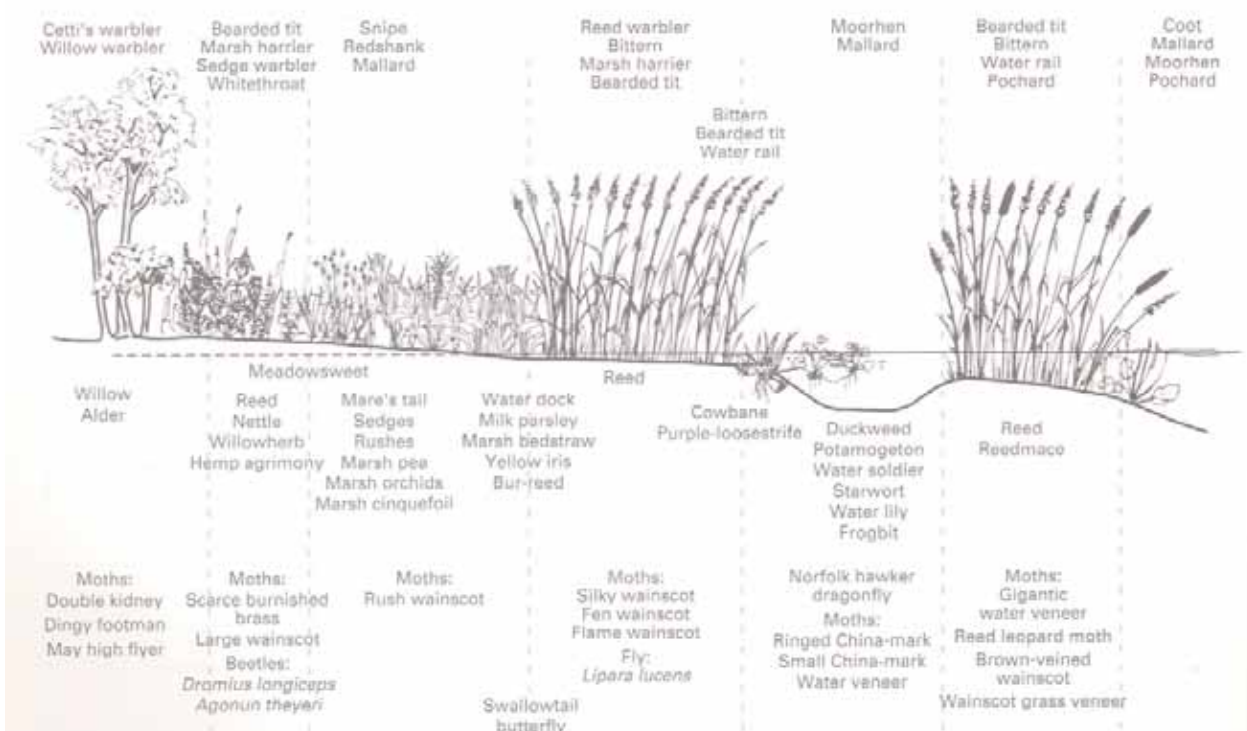
Bearded Tit (above) and Cetti's Warbler (below) are both highly dependent on reedbeds

Life below and above water

Reedbeds provide an ideal habitat for fish and eels, particularly when connected to streams and rivers. This allows for free movement of these species according to their breeding cycles. Frogs and toads are an important food source for herons and bitterns, although toads are apparently less tasty! Frogs are also eaten by grass snakes that lay their eggs in heaps of cut reed and other vegetation.



The Wildlife Value of Reedbeds



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Last, but not least, are the Water Voles, Water Shrews, Harvest Mice and Otters, all of which thrive in reedbeds or associated habitats. Water Voles and shrews like to make their burrows along the edge of ditches and streams, where there is lots of tall vegetation to eat and to provide protection. Harvest mice will build their nests in the top parts of reeds and in other tall plants. Otters favour larger reedbeds and expanses of open water. They feed on fish and frogs.



Water Voles make their burrows where there is lots of tall vegetation for food and protection

The Uses of Reeds

The reed has been an extremely useful plant for centuries. Probably its most well known use is as a thatching material for roofs. Thatching is a traditional practice and one that is still carried out on a commercial basis. Reedbeds are a good example of how an environment of high conservation value can be managed in such a way that it is also of economic benefit.

Thatching

There are about 60,000 thatched roofs in the UK. A well roof will last up to 80 years in the east and 50 years in the southwest, where it is wetter. Commercial reedbeds are cut annually, rather than on a rotational basis when maintained for wildlife alone. The reed harvest begins in November when the reed has hardened. It normally ends in March so that newly growing shoots are not damaged and breeding wildlife is not disturbed.

At present, Britain is unable to produce enough reeds to thatch its roofs. During the last 10 years or so nearly 4,000 tonnes of reeds have been imported annually. Establishing more commercial reedbeds will not only increase valuable reedbed habitat but could also create more employment.

Traditional thatching, photos from top: Reed bundles, building a ridge roll and reed thatching



Water Treatment Systems

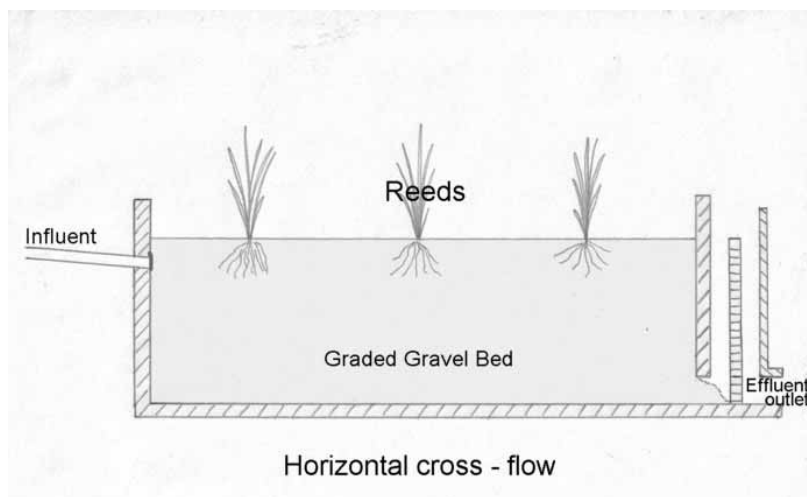
Reeds are increasingly being used to treat domestic and industrial wastewater. Normally sewage and wastewater is directed to a sewage treatment works where a lengthy cleansing process takes place before clean water is discharged into the environment.

A constructed reed bed system removes the 'middle man' – the sewage treatment works. As the wastewater passes through the horizontal and vertical rhizomes of the Common Reed is organically cleaned by bacterial activity.

The purification process is by aerobic and/or anaerobic decomposition. Aerobic processes take place when oxygen is present. The organic matter is broken down into inorganic compounds such as nitrates, phosphates, sulphates and carbon dioxide. Anaerobic processes occur when there is no oxygen and the biochemical end products are different (ammonia, sulphides and methane). A combination of both processes helps to achieve the complete breakdown of organic matter.

Microorganisms and plants can consume and/or remove pathogenic bacteria and viruses, hydrocarbons, heavy metals, nitrogen, phosphorus and suspended solids. In order to assess the quality of the water in a watercourse, the amount of Biochemical Oxygen Demand (BOD), nitrates and phosphates are measured.

BOD is a measure of the oxygen used by microorganisms to decompose organic waste. If water contains a large amount of organic waste, this means there will be lots of bacteria present decomposing the waste. As a result the demand for oxygen will be high, so the BOD level will be high. As the waste gets broken down and dispersed through the water the BOD levels begin to fall.



Cobnor Sewage Treatment System

Wastewater passes into the bed where the initial cleaning process takes place when it is filtered through the gravel and taken up by the roots of the reeds. The water then discharges into the reedbed pond where it undergoes further purification by reeds

Cobnor Sewage Treatment

The domestic reedbed sewage treatment system at Cobnor is the only one that exists in the Chichester Harbour Area of Outstanding Natural Beauty at present. The bed is in its early stages of development. All grey and sewage water will pass through a septic tank, where solids settle. The liquid then continues to flow through vertical reed beds (as illustrated in the diagram) and then through a horizontal reedbed swamp. The clean water may then be safely discharged into the harbour.

The Reedbeds of Chichester Harbour

The reedbeds of Chichester Harbour have a high priority status. There are approximately 15 areas of reedbed within the AONB, but most of are quite small, measuring 0.5ha or less. They are associated with both freshwater and brackish sites. The most significant reedbeds are at Thorney Island (about 3.6ha) and Fishbourne (about 2.6ha). The Sussex Reedbed Habitats Action Plan includes an action to maintain and restore 9ha of reedbed habitat in Chichester Harbour.

There are several nationally important birds, insects and mammals living in the harbour's reedbeds. Bird species include the Sedge Warbler (*Acrocephalus schoenobaenus*), the Reed Warbler (*Acrocephalus scirpaceus*) and the Reed Bunting (*Emberiza schoeniclus*). Moth species that can be found are Webb's Wainscot Moth (*Archanara sparganii*) and the Brown Veined Wainscot Moth (*Archanara dissoluta*). The highly protected Water Vole (*Arvicola terrestris*) is frequently found in the harbour's streams and other wetlands. In many parts of the country the Water Vole is predated on by the American Mink. Mink are rarely found in Chichester Harbour or the neighbouring areas, so the Water Voles are safe from them at present.

Plants generally found growing in or near the reedbeds are Nettle (*Urtica dioica*), Great Willowherb (*Epilobium hirsutum*), Hemp Agrimony (*Eupatorium cannabinum*), Reedmace (*Typha latifolia*), Meadowsweet (*Filipendula ulmaria*) and Elder (*Sambucus nigra*).

The Fishbourne reedbeds are managed by the Chichester Wildfowlers Association. They cut and burn the reeds on a rotational basis to encourage new growth and prevent the silting-up of the beds.

It is quite an experience to walk through the Fishbourne reedbeds. This can be done either by walking past the Fishbourne duck pond at the bottom of Mill Land and following the path right through the reeds. Alternatively at low tide climb into the stream that flows through Fishbourne Meadows and follow it down to the mudflats at the head of Fishbourne Channel. The walk takes you through a section with towering reeds on either side



Reed Warbler



Webb's Wainscot Moth, above and Sedge Warbler below



Chichester Harbour has other reedbeds that are worth visiting, such as the beds at Chichester Marina. These are in an area that in the past was covered with saltpans used to extract salt from seawater for local and commercial purposes. The reedbeds were developed during the 1960's after the Marina was built. They are fed by a stream of fresh water flowing into them from the north side. The birds in the reedbeds can be observed from an overlooking hide.

The reedbeds at Chichester Marina (top) can be viewed from the bird hide

The Thorney Island reedbeds (below) have formed in Thorney Deeps which separates the island from the mainland



Make
a handbag

Baskets and mats can
be woven from the
stems and leaves

Prepare
a picnic

The young shoots
can be eaten and
are said to taste
sweet

Write
a letter: 1

During the time of Confucius (551-478
BC) Chinese scholars wrote on strips of
bamboo with a paint-like pigment held
on the points of wooden sticks or
reeds

Play
Cowboys
and Indians

Reeds have been
used to make arrow
shafts by North
American
Indians

Make
a fire

The stems can
be burnt as a
fuel

Tie a knot

The fibre in the
stems can be
turned into
rope

Cultivate
a vegetable
patch

Reeds are used
as a fertiliser



What can I
do with a
reed?

Play
a tune

The dry hollow stems
can be made into
whistles and pipe
instruments

Make
a greetings card

The stems can be turned
into composite materials to
be used in the card
industry

Build a house

Reeds have been used as
a foundation to make
homemade bricks

Write
a letter: 3

Samuel Pepys is said
to have used a reed to
write with when he
ran out of quill
feathers

Colour
your hair

A light green
colour can be
extracted from
the flowers for
use as a dye

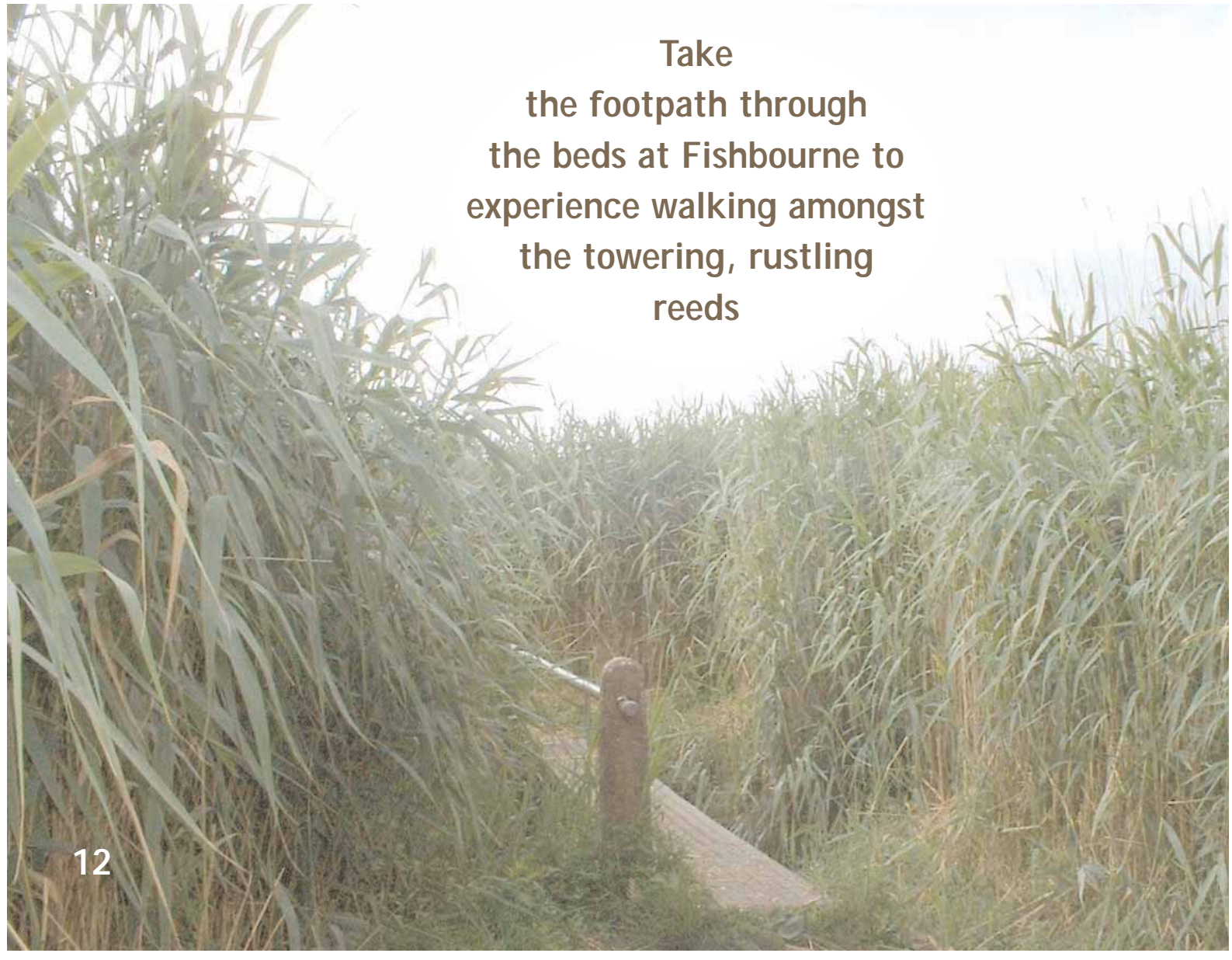
Write
a letter: 2

Paper can be made
from the fibre that is
found in the stems
and leaves



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Heritage Lottery Fund

This Guide is available online as a pdf from www.conservancy.co.uk
or from the Harbour Office, Itchenor 01243 512301

A photograph showing a narrow wooden boardwalk path that winds through a dense field of tall, green reeds. The reeds are very tall, reaching above the path, and their long, thin leaves are visible. The sky is a pale, overcast blue. The path is made of wooden planks and is bordered by a simple wooden post and rail.

**Take
the footpath through
the beds at Fishbourne to
experience walking amongst
the towering, rustling
reeds**