

New Wetland Harvests

New life for the Broads fens



New technology is restoring wildlife habitats and creating sustainable products from traditional wetland materials

 Broads Authority



 Anglian Water



British Reed
Growers
Association




ENGLISH
NATURE



The reed harvest at How Hill



The Broads Fens

Fens, the wet, peaty land around the rivers and broads (shallow lakes), are home to many rare and threatened species including the bittern, swallowtail butterfly and fen orchid. Open fens cover 2000 ha, or just under 20% of the Broads area. The Broads has the largest expanse of species-rich fen in Britain, which in the past was intensively harvested for animal feed, animal bedding and thatch.

There is still a strong demand for reeds and sedge for thatching, and the Broads Authority grows and harvests both on its fens at the How Hill nature reserve. Architects and builders are encouraged to use thatch as a modern roofing material on new buildings as well as old. It is very durable, lasting about 70 years, and provides good insulation so that buildings are warm in winter and cool in summer.



The problem - loss of fen habitat

But over the last 50 years many fens have been neglected, and much of this rare habitat is drying out and disappearing under scrub and woodland. Since 1946 the area of open fen in the Broads has declined by about a third. Only a small proportion of this area provides reed and sedge of a suitable quality for thatching, and the traditional demand for animal feed and bedding declined with the replacement of horses by motor transport. Regular management is needed to sustain the fens in good condition to conserve the full range of habitats and wildlife.

The solution — regeneration of the fens

Recent fen restoration work has started to reverse the loss of fen habitat. The Broads Authority, English Nature and partner organisations have produced a Fen Management



Strategy for the Broads; the main objective is to maximise the area of open fen while protecting the equally important carr (wet) woodland. The landscape and commercial benefits are important, but maintaining the fen habitat for its rare wildlife is the key objective in the Broads. In order to achieve the strategy's wildlife conservation objectives, at least 250 ha of fen need to be cut per year, but only a fraction of this can be achieved with conventional cutting techniques (cutting by hand or with brush-cutters). Harvesting fens is a labour-intensive process, while cutting scrub and then burning the fen litter on site provides no economic benefit.

New Wetland Harvests

The New Wetland Harvests project is regenerating the Broads fens. The project is developing practical technologies which are improving the harvesting of vegetation from wetlands across Europe. It is also transforming the harvest to

provide local, renewable energy supplies. The project has been funded through the EU LIFE partnership, with additional funding from the Broads Authority and local partners.

The project involved developing and testing a highly specialised mechanical harvester. The machine has a very low ground pressure, designed to cope with wet, soft and uneven terrain of high environmental sensitivity. The harvester cuts the vegetation into small pieces. For easy extraction of materials, an air-blower sends the harvested material down a flexible pipeline, up to 1000m long, to a waiting lorry.

The fen harvester was designed for the Broads Authority by consultant engineer Nick Ash of Melton Mowbray and was built by Loglogic of Tiverton, Devon.

Development of the fen harvester means that we now have a more cost effective way of managing the fens. The material can be put to good use and can generate income, helping to offset



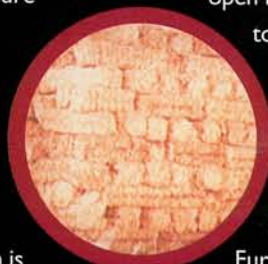
Fen harvester specifications

Ground pressure	0.100 kg/cm (1.5 psi) max	Cut height	0-300 mm
Machine speed	cutting 0-6 kph — transit 0-20 kph	Size of cut vegetation	25-40 mm
Vegetation to be cut	reed, sedge, mixed fen litter	Harvesting capacity	up to 0.3 ha/hr or 2000 kg/hr
Type of cutter	double reciprocating knife	Carrying capacity	500 kg min
Cut width	2.2 m approx		

the cost of essential conservation management. Wetlands can now be valued for their economic use, as well as their conservation and recreation uses. Ecological monitoring is being carried out throughout the project to ensure that the conservation management objectives are met.

New generation fen products

Developing handling and processing methods, and researching product needs, are important parts of the project. The chopped fen vegetation is dried on a mechanical drying floor, similar to the sort used for drying grain. Drying and processing need to be carried out close to fen sites for maximum efficiency, sustainability and cost effectiveness. Fen products can be put to a variety of uses, which have all been successful in trials, including animal feed in the form of pellets, animal litter and various forms of biofuel.

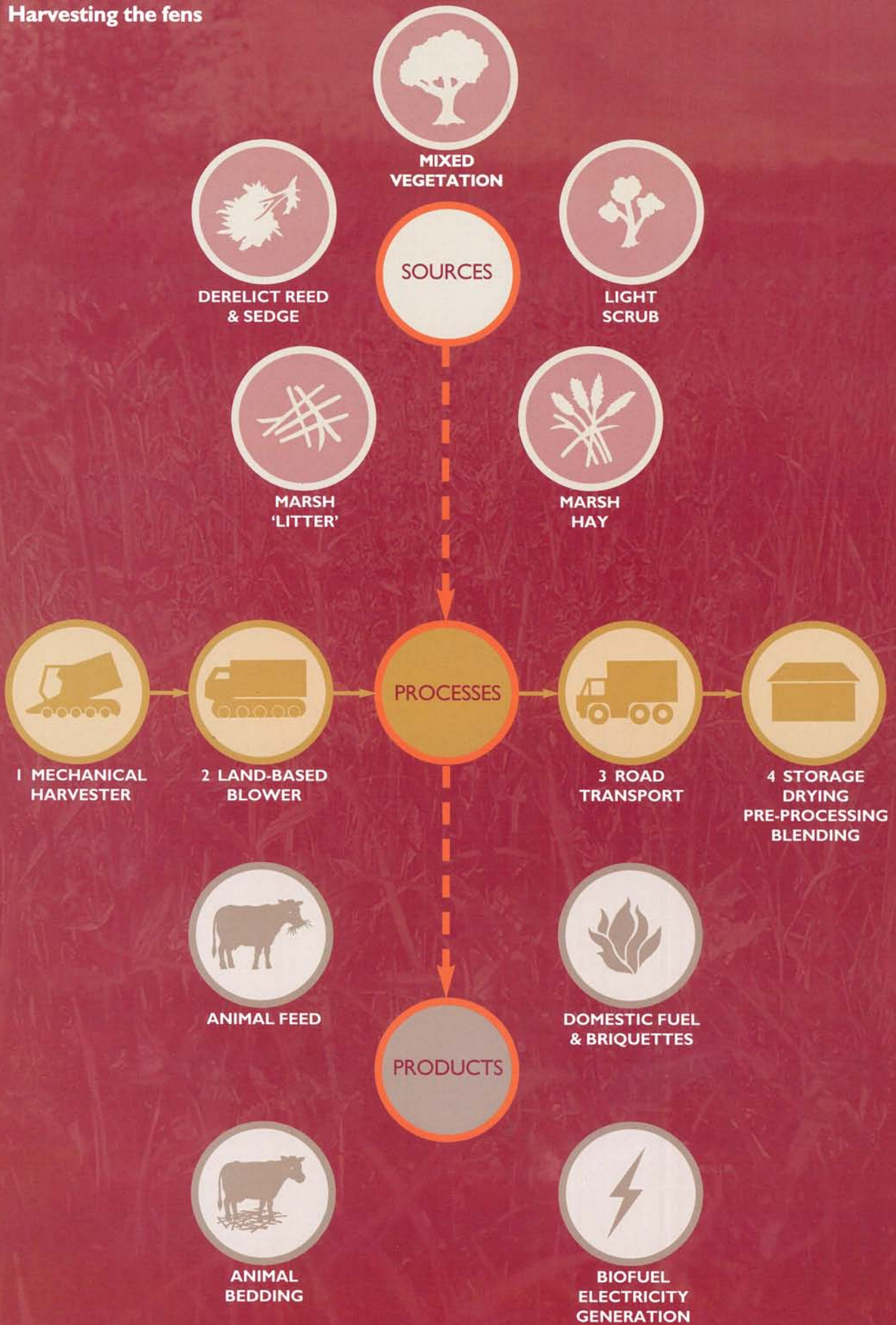


Biofuel

The fen material can be burnt to produce heat and electricity, or it can be formed into briquettes suitable for a domestic open fire, wood burner or boiler. Biofuel can also be used to raise steam for heating, or produce gas as an energy source. The resulting gas can directly fuel an engine or electricity generator. In addition, the conversion of biofuel to a liquid form is a possibility, with the additional benefits of storage, portability and ready use in existing power plants.

Further trials of all these systems are currently taking place. For the Broads Authority, the next stage is to design and build an innovative boiler system for drying, handling and burning the fen material. The boiler will produce electricity for use on site (in the product processing systems) or to put into the national grid, and excess heat will be used for the drying system for the fen material.

Harvesting the fens





Horsey Mere

A future for the fens

Conventional cutting for thatch will continue, but the fen harvester provides the new technology we need to manage large areas of the Broads fens to

maintain them as a habitat for rare wildlife, and we know there is the added benefit of a market for the fen products. The Broads Authority plans to develop new management agreements with landowners, so that the fen harvester can be used on a co-operative basis, and eventually move

to the stage where several harvesters can be used to manage the Broads fens.

The project is being closely followed by colleagues in other countries, particularly France, the Netherlands, Rumania, Poland and Ukraine. Wetlands throughout Europe need positive management work to protect them. In the vast wetlands of eastern Europe the fen harvester has even further potential as a means to the production of local renewable energy.



For further information (including a video), or to arrange a demonstration, please contact:

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The Broads is Britain's largest protected wetland — a unique mosaic of open water, fens, carr woodland and grazing marshes, in the east of England. The Broads Authority is one of the group of national parks in England and Wales, and is a member of the Association of National Parks and the Europarc Federation.