NORFOLK BIODIVERSITY ACTION PLAN

Ref 1/H4	Tranche 1	Habitat Action Plan 4
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Plan Leader:		
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FENS

Fens are wetland areas developed on peat soils and are often dominated by reeds, rushes and sedges. If not managed by grazing or cutting, they would develop into woodland. They are complex systems which support a wide variety of plant and animal species, including many BAP species.

1. CURRENT STATUS

National Status

- The UK is thought to host a large proportion of fen surviving in Europe. As in other parts of Europe, fen vegetation has declined dramatically in the past century. Fens are peatlands, which receive water and nutrients from rock, soil and ground water, as well as from rainfall: they are minerotrophic. Two types of fen can broadly be distinguished: topogenous and soligenous. Topogenous fens are those where water movements in the peat or soil are generally vertical, these include floodplain fens and basin fens. Soligenous fens, where the water movements are predominantly lateral, include mires associated with valley fens, springs and flushes. Fens can be described as 'poor-fen' or 'rich-fen'. Poor-fen, where the water is derived from base-poor rocks occurs in the lowlands with heathland. Rich-fens are fed by mineral-enriched calcareous waters.

Norfolk Status

- Norfolk is particularly rich in fen habitats, supporting a large proportion of the UK total for some types. The Broads natural area possesses some 5,000 ha of rich-fen habitat, mostly of the floodplain type, with some examples of valley fen. Rich-fen is also associated with pingo sites such as Thompson Common, East Walton and Adcock's Common and Foulden Common. Elsewhere, numerous rich-fens of the valley head type are found associated with the county's rivers. In north-west Norfolk, some 350 ha of poor-fen is found primarily associated with Roydon Common and Dersingham Bog. Table 1 below lists Norfolk SSSIs that support an important fen component. Many other fen sites are recognised as County Wildlife Sites.

- Fen habitats support a particularly diverse array of plants and animals, including:

  - Over 250 plant species, some of which cannot be found anywhere else in lowland Britain, such as the fen orchid;
  - Birds, such as bittern, bearded tit and marsh harrier;
  - Mammals, such as water vole, otter, harvest mouse, vole and water shrew;
  - Butterflies such as the swallowtail (*Papilio machaon*). The British race of this species (*britannicus*) occurs only on fens in the Norfolk Broads;
  - Moths, including rare species such as reed leopard and fen's wainscot;
  - Numerous species of dragonflies and damselflies, such as the scarce chaser (*Libellula fulva*) and the Norfolk hawker (*Aeshna isosceles*);
  - Many other invertebrates, including BAP species such as the reed beetle (*Donacia aquatica*), a ground beetle (*Badister peltatus*), the lesser water measurer (*Hydrometra gracilenta*), a weevil (*Melanopium minimum*), and the diving beetle (*Bidessus unistriatus*).

2. CURRENT FACTORS CAUSING LOSS OR DECLINE IN NORFOLK

- Fens are dynamic, semi-natural systems and in general, management is needed to maintain open fen communities and their associated species richness. Without appropriate management and water supply, natural processes will lead to scrub and woodland forming. Current factors affecting this habitat type include:

  - Land drainage and land use, local and within catchments, affects water quality and quantity within and around fen sites.

  - Changes in hydrology of floodplain fens, where they have become isolated from the river water which irrigated the fen.

  - Excessive water abstraction from aquifers and surface sources reduces spring flows and lowers water tables. Abstraction affects the natural balance between the differing water qualities of ground and surface water.

  - Lack of appropriate management remains an issue, both the restoration of past neglect and maintaining systems of sustainable, ongoing management post-restoration.

  - Fens, particularly those of the valley type, are susceptible to run off of poor quality water, and drainage from agricultural land and afforestation within the catchment.

  - Enrichment or hyper-trophication resulting in changing plant communities.

3. CURRENT ACTION

A large proportion of fen habitat in Norfolk has been designated SSSI, with much of this also candidate SAC and Ramsar site. Many fens are managed by conservation bodies, some of which are also managed as NNRs.

i) English Nature and the Broads Authority have produced a Fen Audit, identifying management possibilities and constraints for each fen site. This supplements the Fen Management Strategy for the Broads Natural Area. Restoration aims will be agreed with landowners.

ii) All conservation bodies and many landowners are undertaking management works to restore favourable conditions on SSSI fen sites.

iii) The Broads Authority leads a partnership project co-ordinating mechanised fen harvesting equipment. Also experimental grazing of fen sites is being progressed in the Broads.

iv) The new Environmental Stewardship scheme, to replace ESAs, has the potential to provide appropriate levels of funding through the Higher Level Scheme to support sustainable management of fen habitats. Conservation staff from English Nature, Broads Authority, Norfolk Wildlife Trust and Farming and Wildlife Advisory Group (FWAG) provide management advice, both to landowners and DEFRA.

v) A programme of fen research and monitoring is to be developed as an outcome from the Supplement to the Fen Management Stratgey , which incorporates the Broads Fen Audit. All conservation bodies are involved in monitoring fen sites.

vi) The Environment Agency has embarked on an extensive water level monitoring project for a number of Norfolk fen sites. Many fens are subject to Water Level Management Plans prepared by operating authorities. English Nature and the Broads Authority have commissioned research into the hydrological functioning of fen sites.

vii) Water Companies have undertaken improvements to sewage treatment works, thereby improving the quality of water in the Broads. Further water quality improvement projects will be undertaken by Water Companies under AMP4.

viii) Under AMP4, further investigations for water quality will be undertaken by water companies.

ix) Restoration and management of Cladium rich fen by the Reed and Sedge Cutters' Association.

4. ACTION PLAN OBJECTIVES AND TARGETS

National

- Identify fen sites in critical need of, and initiate rehabilitation by 2005. All rich fen and other sites with rare communities should be considered.

- Ensure appropriate water quality and water quantity for the continued existence of all SSSI fens by 2008.

Norfolk

- Identify Norfolk fen sites in critical need of rehabilitation by 2005, and initiate restoration by 2010.

- Ensure appropriate water quality and water quantity for the continued existence of all Norfolk SSSI fens by 2010.

- Complete restoration of SSSI fen sites by 2010

- Identify key non-SSSI fens for restoration by 2005, and initiate restoration plans.

Fens - Norfolk Action Plan

NATIONAL ACTION		NORFOLK ACTION	ACTION BY:	PARTNERS:
5.1	**Policy and Legislation**			
5.1.1	Review water quality and set standards for fens by year 1998 through the appropriate government agencies and departments. Aim to meet these targets by year 2010.	Review water quality and set standards for fens by year 1998 through the appropriate government agencies and departments. Aim to meet these targets by year 2010	EA, EN and BA	
5.1.2	Review water resource uses by 1998 and aim to meet these targets where they affect fens by year 2010.	Review water resource uses by 1998 and aim to meet these targets where they affect fens by year 2010.	EA	
5.1.3	Consider modifying or expand existing habitat schemes and countryside schemes such as Wildlife Enhancement Scheme (WES). Tir Cymen, ESAs, Countryside Stewardship and Nitrate Sensitive Areas to encourage the protection of fens from agricultural contaminants.	Encourage uptake of HLS fen tier, and use of the schemes to develop buffer zones adjacent to fens. Ensure that the HLS delivers appropriate management to individual sites	DEFRA (RDS) EN, BA, NWT, NCC FWAG	
5.1.4	Prepare and implement water level management plans.	Implement water level management plans for wetland SSSIs by 2008.	IDBs, EA	
5.2	**Site Safeguard and Management**			
5.2.1	Continue to notify important sites as SSSI by 1998.			
5.2.2	Progress with the existing programme for designation as Ramsar, SPA and SACs by year 2004.			
5.2.3	Ensure that development schemes do not affect the integrity or the conservation interest of fens.	Ensure that development schemes do not affect the integrity or the conservation interest of fens.	LAs, EA, EN, NWT	

NATIONAL ACTION		NORFOLK ACTION	ACTION BY:	PARTNERS:
		Complete the identification of locally important sites.	BA, NWT, NCC, EN	
5.2.4	Agree a list of fens requiring remedial treatment by 1998.	Agree a list of fens requiring remedial treatment by 2005. • BA/EN Broads Fens using PSA plan by 2005 • EN non-Broads SSSIs by 2005 • NWT non-SSSI fens by 2005 Assess Broads fen meadow survey and review potential for fen recreation	EN, BA, NWT	
5.2.5	Ensure that favourable management is in place for priority fen sites by 2005, by NNR establishment and SSSI management agreement or equivalent.	Ensure that SSSI fens meet favourable conservation status by 2010. For non-SSSI fen sites initiate restoration and sustainable management	EN, BA BAP group, DEFRA (RDS)	
5.3	**Species Management and Protection**			
5.3.1	Agree conservation strategies with relevant statutory and non-statutory agencies.	See actions under relevant SAPs		
5.3.2	Initiate or participate in training courses appropriate to the management of fens.			
5.4	**Advisory**			
5.4.1	Promote the interchange of management techniques conservation strategies and co-operation on research affecting fens.	Promote the interchange of management techniques conservation strategies and co-operation on research affecting fens.	EN, BA, RSPB, and NWT	

NATIONAL ACTION		NORFOLK ACTION	ACTION BY:	PARTNERS:
5.5	**Future Research and Monitoring**			
5.5.1	Undertake necessary research to inform and monitor attempts to restore and re-create rich fen and related habitats.	Undertake necessary research to inform and monitor attempts to restore rich fen and related habitats.	EN, BA, EA, RSPB, DEFRA (RDS) and NWT	
5.5.2	Promote research into ecology of fen species, particularly in relation to water quality, water quantity and management requirements.	Monitor and research hydrology of sites to determine peat conductivity and movement of water.	EA, EN, BA RSPB, and NWT	
		Promote research into ecology of fen species, particularly in relation to water quality, water quantity and management requirements. There is a particular need for research into the status and requirements of BAP invertebrate species.	EA, EN, BA RSPB, and NWT	

NORFOLK DISTRIBUTION

Table 1: Broads and non-Broads SSSI supporting fen habitat in Norfolk.

Broads SSSI that Support Fen Habitat	Non-Broads SSSI that Support Fen Habitat
Alderfen Broad Ant Broads and Marshes Broad Fen, Dilham Bure Broads and Marshes Burgh Common and Muckfleet Calthorpe Broad Cantley Marshes Crostwick Marsh Decoy Carr, Acle Duncans Marsh East Ruston Common Geldeston Meadows Hall Farm Fen Halvergate Marshes Hardley Flood Limpenhoe Meadows Ludham/Potter Heigham Poplar Farm Meadows Priory Meadows Smallburgh Fen Stanley and Alder Carrs, Aldeby Trinity Broads Upper Thurne Broads and Marshes Upton Broads and Marshes Yare Broads and Marshes	Adcocks Common Badley Moore Booton Common Boughton Fen Buxton Heath Castle Acre Common Coston Fen Cranberry Rough, Hockham Dereham Rush Meadows Dersingham Bog East Harling Common East Walton Common East Winch Common Flordon Common Forncett Meadows Foulden Common Great Cressingham Fen Holt Lowes Kenninghall and Banham Fens and Quidenham Mere Leziate Sugar and Derby Fens Middle Harling Fen Old Buckenham Fen Potter and Scarning Fen River Nar River Wensum Roydon Common Sheringham and Beeston Southrepps Common Swannington Upgate Common Swangey Fen Thetford Golf Course and Marsh Thompson Common Whitwell Common

MANAGEMENT GUIDANCE

(This guidance is a general summary; for detailed information or advice, consult the references or contacts below.)

In the seven years that have passed since the publication of the Fen Management Strategy (1997), considerable steps have been taken to restore areas of fen and to implement follow-up management. Much has been learned during this time, particularly concerning the use of new techniques such as the fen harvester and extensive grazing.

Information gathered through the use of the fen harvester and grazing animals has also presented the opportunity to explore their potential for use on a wider selection of sites.

Having reappraised the fen management opportunities open to us and undertaken a realistic assessment of what techniques can be used where, there is clearly a need for a further step. Following the publication of the Fen Audit (2004), and linked to favourable condition and Public Service Agreements (PSAs), the ecological management requirements of each site need to be assessed. Together this ecological assessment and the practical findings of the Fen Audit can be combined to make decisions about the best way forward in order to ensure sites can be restored and maintained in favourable condition into the future.

Extracted from: *A Supplement to the Fen Management Strategy - incorporating the Fen Audit*. (2004). Broads Authority and English Nature.

REFERENCES

Fen Management Strategy – a strategy for environmentally sustainable management of the Broadland Fens. (July 1997). Broads Authority, English Nature and Anglian Water

A Supplement to the Fen Management Strategy – incorporating the Fen Audit. (August 2004). Broads Authority and English Nature

New Wetlands Harvester – New Life for the Broads fens video. Broads Authority EU LIFE funded project.

CONTACTS

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