



# **Boughton Fen Management Plan**



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## **Executive Summary**

Boughton Fen is a nationally designated Site of Special Scientific Interest (SSSI) and is currently classed as being in an 'unfavourable condition'. Water loss is occurring at an alarming rate and there is rapid encroachment of scrub that will lead to this important site becoming woodland in a short period of time and this will result in the loss of important wildlife currently existing in this environment. These adverse conditions are fundamentally the result of neglect and the lack of a definitive structure for managing this site.

To execute the management of this site the Boughton Fen Committee (BFC) has been created. Working under the auspices of the Boughton Parish Council and in conjunction with the relevant stakeholders, including the parishioners of Boughton, who collectively own the site, Natural England and other recognised experts this Management Plan sets out our aims and objectives in returning this site to a 'favourable condition'.

The time frame of this plan is 10 years and it will be reviewed on a rolling annual basis to ensure concurrency with our aspirations. This is an all inclusive project; we will consult with the relevant stakeholders on a regular basis and welcome all offers of help, support and guidance from anyone interested in the improvement and protection of this site.

## **Vision Statement**

The Boughton Fen Committee aims to work under the guidance of Natural England and other recognised experts to help return Boughton Fen back to a 'favourable condition' and will strive to develop and enhance The Fen ensuring it's continued status as a nationally recognised SSSI and thus help secure it's future for the enjoyment of current and future generations.

**Mark Pogmore**

For and on behalf of the Boughton Fen Committee



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**Compiled:**

**Allan Hale (Boughton Fen Committee)**

**Approved:**

**Mark Pogmore (Boughton Fen Committee)**

**Approved:**

**Ian Levett (Natural England)**



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## **Abbreviations**

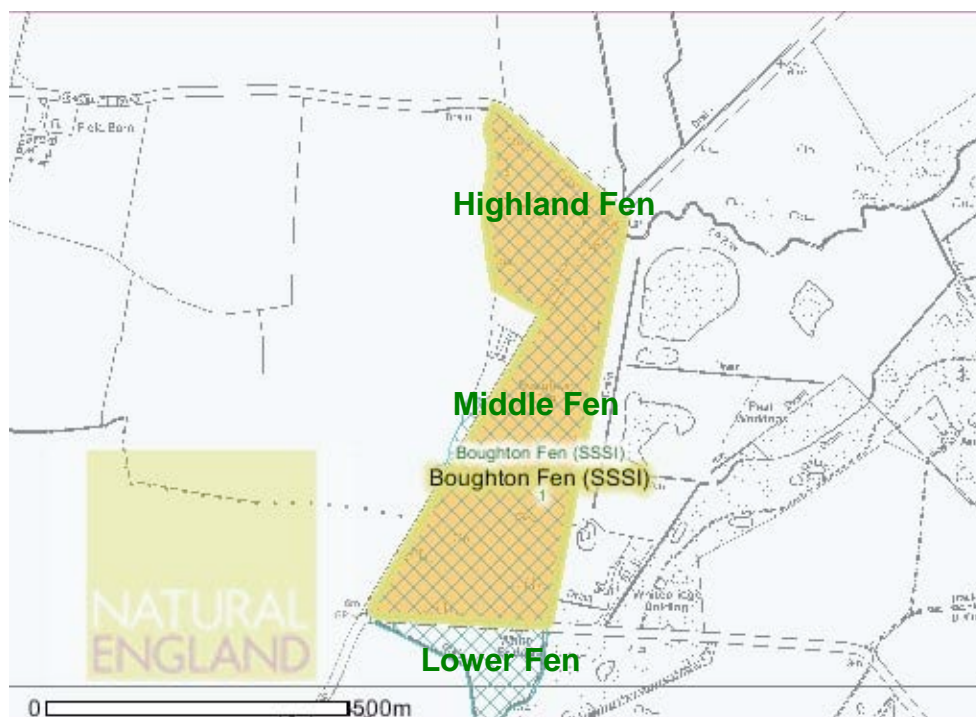
ac	Acre
BFC	Boughton Fen Committee
CPH	County Parish Holding
Ha	Hectare
SBI	Single Business Identifier
SSSI	Site of Special Scientific Interest



## **1 Introduction**

Boughton Fen is a nationally designated Site of Special Scientific Interest (SSSI) and is currently classed as being in an 'unfavourable condition' (Source: Natural England, SSSI Assessment 2003). Water loss is occurring at an alarming rate and there is rapid encroachment of scrub that will lead to this important site becoming woodland in a short period of time and this will result in the loss of important wildlife currently existing in this environment. These adverse conditions are fundamentally the result of neglect and the lack of a definitive structure for managing this site.

Boughton Fen comprises three separate parcels of land at the eastern end of Oxborough Road. For ease of identification the Boughton Fen Committee (BFC) have labelled these parcels of land Highland Fen, Middle Fen and Lower Fen. The total registered area of The Fen is 44 acres and two of these parcels have been designated SSSI status by Natural England, namely Highland Fen and Middle Fen.



Boughton Fen is situated on shallow fen peats in the valley of a tributary of the River Wissey. A tall fen community covers much of the site and several interesting plants are present. Scrub is well represented and is used by breeding birds. The site is of entomological interest.

Reed *Phragmites australis* forms an almost pure stand where the water-table is highest at the southern end of the site. The remainder of the site is of variable wetness and a more diverse fen community has developed. Reed is again dominant, but Meadowsweet *Filipendula ulmaria* and Great Willowherb *Epilobium hirsutum* are abundant. Other species present include Common Valerian *Valeriana officinalis*, Hemp Agrimony *Eupatorium cannabinum*, Angelica



*Angelica sylvestris*, Purple Small-reed *Calamagrostis canescens* and Reed Sweet-grass *Glyceria maxima*.

On the highest ground, woodland has developed and is dominated by Ash *Fraxinus excelsior* and Alder *Alnus glutinosa* with some Willow *Salix sp.* The ground flora consists of Meadowseet, Nettle *Urtica dioica* and Hogweed *Heracleum sphondylium*. Several areas of dense Blackthorn *Prunus spinosa* scrub are present on the drier parts of the site.

Many uncommon species of moth have been recorded from the site, including the rare *Perizoma sagittata*. Sedge, Reed and Grasshopper Warblers all breed on The Fen and otters are regular visitors. The *Perizoma sagittata* is the nationally scarce "Marsh Carpet Moth" which is found in marshes and reedbeds. It will therefore be one of our targets to establish whether or not this moth is still present. The food plant of the Marsh Carpet Moth larvae, Common Meadow-rue, *Thalictrum flavum*, has been located on both Highland and Middle Fen.



## **2 Registration**

### **2.1 SSI Notification**

COUNTY: Norfolk  
SITE NAME: BOUGHTON FEN  
DISTRICT: West Norfolk

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: West Norfolk District Council

National Grid Reference: TF 718015 Area: 15 (ha) 36 (ac)  
Ordnance Survey Sheet 1:50,000: 143 1:10,000: TF 70 SW

Date Notified (Under 1949 Act): 1973  
Date Notified (Under 1981 Act): 1983

### **2.2 Rural Land Register**

The Fen is registered on the Rural Land Register via the Rural Payments Agency

- 1) The Single Business Identifier (SBI Number) is 107980343
- 2) The County Parish Holding (CPH Number) is 28/043/0035
- 3) There are three parcels of land registered with the following field numbers:

TF71018773 - Area 4.5ha (11.12acres) – Highland Fen  
TF71018532 - Area 11.07ha (27.35acres) – Middle Fen  
TF71018006 - Area 2.26ha (5.58acres) – Lower Fen

This gives a total registered area of 17.83ha (44.05acres).

### **2.3 Common Land**

Boughton Fen is registered as Common Land under the Common Registration Act 1965 and has been assigned the reference number CL234. Grazing rights exist on this land.



### 3 The Current Problems

The lack of structured management during recent years has led to the degradation of The Fen.

Some years ago, Natural England (then English Nature) under their "Biodiversity Action Plans" recognised a problem at Boughton Fen, targeting "the maintenance, and rehabilitation where necessary, of 11 hectares of wet reedbed at Boughton Fen". This is minuted under their *Reedbeds – National Priority, target 4.1*

Coming back to the present time there are major threats to The Fen. We believe that they can be best summarised as follows:

#### 3.1 Neglect and Scrub Encroachment

We believe that without a Management Plan much of the area will become woodland in a short time. The north and west of The Fen is most at risk due to its slightly higher elevation. It should be noted that The Fen is around 4 metres above sea level in the south-east, rising to around 8 metres above sea level in the north-west.

#### 3.2 Water Loss

The Fen is drying out at an alarming rate. There are at least two reasons for this:

- a) The take-up of water by both the trees and the scrub encroachment/succession
- b) Inappropriate drainage. There is considerable leeching of water from The Fen through the bank and into the Stringside Drain. There is also the question of a badly plugged drain which loses water from The Fen into a local farmer's ditch and then into the Stringside Drain.

The Norfolk Fens Assessment (Norfolk Wildlife Trust, July 2006) claimed that peat extraction on neighbouring land has seriously affected water levels. We are not convinced that this is the case, though we cannot be certain.

A quote from the team of people that ring birds on The Fen is worth recording "*It was immediately noticed that the water table at The Fen continues to fall at an increasing and alarming rate. Four years ago it was necessary to wear wellington boots whilst ringing, and even then parts of the site were not accessible. Last year, boots were only required in some areas, but during 2005 everywhere was accessible in trainers! The reed must now be "living on the edge" and if the drying out of The Fen continues then much of the wildlife will soon be lost*" This quote was from July 2005.

During recent winters (excluding the 2006/7 season), contractors were working on the site in respect of scrub clearance and tree felling. It is understood that this work was organised by English Nature (now Natural England).



The work was only a temporary solution. Whilst the tree felling was generally successful, the scrub clearance (mainly of Alder and Willow) was less so, since extensive re-growth has occurred. In effect we have had the equivalent of rotational coppicing. The Sallow and Alder that was cleared approximately six years ago has already returned to its original height. The picture (shown left) demonstrates the scrub re-growth in the area which was cleared around 2002. Regarding future work we must ensure that re-growth of the

Sallow and Alder is prevented by effectively treating the remaining stumps.

It is considered that with urgent and effective action, The Fen can, along with sufficient effort and investment, be returned to its former glory.

Funding has been made available from Natural England to facilitate initial scrub clearance. Work commenced in March 2008 in the most urgent area. This work is on-going and has been supplemented by local community working parties.

The picture on the following page is from "Google Earth". It shows The Fen as it was just a few years ago, and must have been taken after Natural England (then English Nature) commissioned scrub clearance on The Fen. Note the lack of invasive scrub, especially in the northern-most section. Compare this with the photograph above, also from the northern-most section. This photograph is typical of the section as it is now.



## **4 The Management Plan**

We have studied the requirements of The Fen and, in the short/medium term, we propose a phased campaign of action. This has been prioritised as shown below.

### **4.1 Scrub Management**

#### **4.1.1 Phase 1 – Highland Fen (centred at grid ref TF719018)**

Phase 1 is our highest priority and our aim is to reduce the area of scrub within the reeds to around 15%. Following on from the work commenced in 2008 we shall use working parties and specialised contractors to help reduce this scrub encroachment.

We aim to complete this phase of work by 2011.

#### **4.1.2 Phase 2 – Middle Fen (centred at grid ref TF718014)**



This area is our second priority. This is currently the area of best reedbed and the aim shall be to reduce the area of scrub within the reeds to somewhere between 5% and 10%. Most of the work will be centred on the central and northern parts of this section. We shall use working parties and specialised contractors to help reduce this scrub encroachment. The most southern part is pictured here - it represents the only piece of prime reedbed on The Fen. The shot was taken from the Oxborough Road looking north-north-east.

We aim to complete this work by 2014.



Additionally, we shall remove the large trees immediately north-north-west of the bridge (Kingfisher Bridge) on the Oxborough Road. These trees clearly extract a huge amount of moisture from The Fen. It is considered that the majority of the large (mainly Ash) trees alongside the Stoke Road should remain, at least in the short and medium term, since they give valuable shelter to The Fen from the prevailing winds.

We shall use specialist contractors for larger tree removal and our aim is to complete this work by 2015.



#### **4.1.3 Phase 3 – Lower Fen (centred at grid ref TF718011)**

This is our lowest priority and will consist of the removal of scrub and some larger trees in the southernmost part of The Fen, south of the Oxborough Road. We shall use working parties and specialised contractors to help reduce this scrub encroachment with the aim of reducing the area of scrub within the reeds to around 15%.

It is expected that this phase of work shall be complete by 2016.

#### **4.1.4 Re-growth and Waste Disposal**

All exposed stumps of felled scrub will be treated with a herbicide to prevent re-growth. A horticultural dye shall be painted on to the whole cut surface to ensure that no stumps are missed or treated twice, care will be exercised to ensure that the solution is not allowed to run-off the stump surface. Stumps will be treated as soon as possible following a fresh cut (preferably within 90 minutes). Re-growth will be monitored in the year after clearance and if re-growth exceeds 15% this will be re-treated.

All cut material shall be removed from the site, chipped and removed or burnt. In situations where the area to be cleared is small, material may be stacked to rot down. The location of stacked timber or piles of chips should be agreed with Natural England before work commences.

If material is burnt, fire sites will be no more than one per  $\frac{1}{4}$  ha and will be carried out on tin, where practicable. Fire sites will not exceed 4 m in diameter and where possible be contained to prevent ash contamination of the site and to help facilitate removal of ash.

### **4.2 Water Level Management**

#### **4.2.1 Remedial Works to Highways Drain**

Persuade Norfolk County Council to plug their drain effectively. This will eliminate the leakage from the area north-west of the Stoke Road and south of the Oxborough Road (the area covered in Phase 1 above). The leakage was measured on 22<sup>nd</sup> November 2007 at approximately 270 litres per hour.

It is our aspiration to ensure this work is completed by 2010.

#### **4.2.2 Reduce Water Loss to Stringsides Drain**

Investigate the responsibility of the IDB (Internal Drainage Board) in respect of keeping a satisfactory water level within the SSSI. The level of the Stringsides Drain is below that of The Fen, and there is leaching from The Fen into the drain. Also investigate the legalities of abstracting water from the drain to The Fen via a pump, including the need for an abstraction licence from the Environment Agency. Pumping water might lead to nutrient-enriched water





entering the site which would have a detrimental effect on fen communities, and therefore the river water needs testing first.

The Environment Agency intend to install water level monitoring in The Fen so we know if the water levels are meeting the targets for the plant communities as specified by the Environment Agency guidelines. Dipwell studies might show a need to alter water abstraction patterns in the area if groundwater is being sucked dry by those abstractions.

It is intended to complete this initial investigative work by the end of 2009 to help determine the optimum way forward.

### **4.3 Grazing**

It is our intention to graze livestock on Highland and Lower Fen. These areas will be stock-fenced and grazed by appropriate stock from April to October each year. The aim of the grazing is to enhance the richness of plant communities and stop more scrub from growing. Gates are required at suitable locations to allow vehicle access for management reasons, and pedestrian access is required. It will need legal consent to fence the common land and liaison with relevant bodies will be necessary. A water supply for the livestock needs to be present.

It is our aim to fence the requisite areas by 2010 and to commence grazing from 2011.

### **4.4 Reedbed Management**

We will manage the reedbed of Middle Fen on a four to five year rotation to reduce litter accumulation, maintain botanical diversity and provide a varied age structure for invertebrates and birds. Our aim is to cut 2ha of reed per year and rake the cuttings to the edge where they can be piled up to produce habitat for grass snakes and invertebrates or removed from site.

In the longer term we will explore the possibility of selling the higher quality reed.

We aim to investigate our options by the end of 2009 and commence cutting from 2010.

### **4.5 The Longer Term**

#### **4.5.1 Public Accessibility**

It is desirable to improve access to the local community being mindful of the flora and fauna. They will be encouraged to take an interest in The Fen and its wildlife, and this will hopefully result in their desire to maintain The Fen in the long term. It is our aim to encourage the involvement of children wherever possible to help stimulate environmental awareness and provide educational benefits.

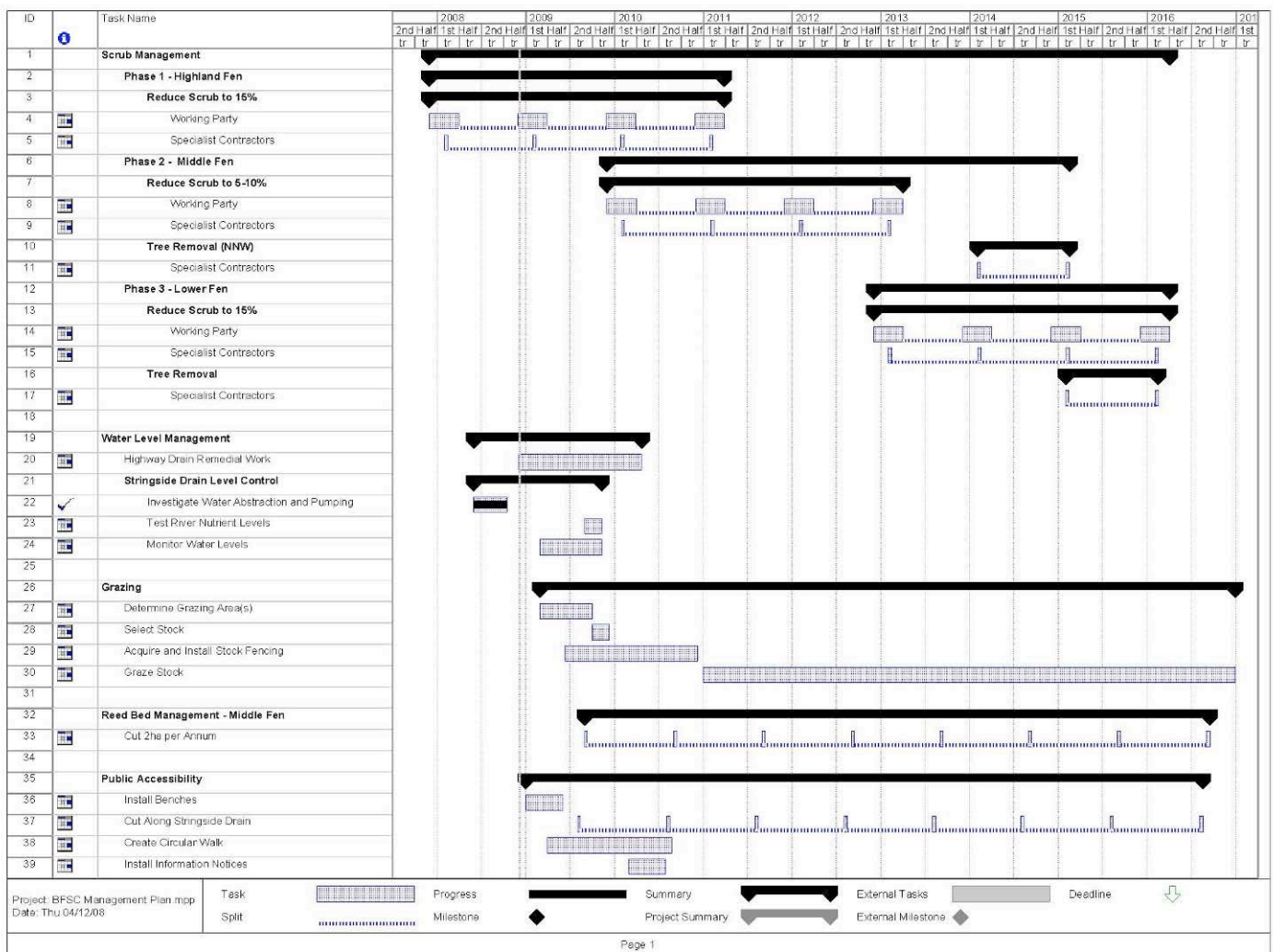
To date the Boughton Fen Committee has installed a bench on Highland Fen with plans already in place for the installation of two further benches adjacent to the bridges alongside Stringside Drain in 2009.



The Internal Drainage Board has cut the berm along Stringside Drain, to facilitate pedestrian access and they will be encouraged to repeat this exercise annually.

By the end of 2010 it is expected that a circular walk through the higher parts of The Fen will have been created, along with the erection of public information signs detailing the highlights of the circular walk and flora and fauna.

### 4.6 Project Management Timeline





## **APPENDIX 1 - BIRDS**

Species recorded at Boughton Fen during the last 6 years (2003-08), as identified by Allan Hale. This only lists species that have actively “used” The Fen, therefore omitting all “fly-overs” that have been seen from The Fen but do not “use” it. The Table below follows the order of that most recently published by the British Ornithologists Union.

<b>SPECIES</b>	<b>COMMENTS</b>
Greylag Goose	Common east of the Stringside Drain , but only occasionally seen in the more open areas of reedbed
Mallard	Occasionally seen in the reedbed and also during the winter in the wetter areas of The Fen
Pheasant	Surprisingly common in the reedbed
Bittern	A single sighting during the winter of 2006/07
Grey Heron	Only an occasional visitor to the more open areas of The Fen
Marsh Harrier	A pair has attempted to breed in three of the last four years. For various reasons, all attempts were unsuccessful – once due to accidental disturbance, once predated and once the cause of failure was unknown
Hen Harrier	A winter visitor occasionally seen hunting over the reeds.
Sparrowhawk	Reasonably regular in the drier parts of The Fen
Hobby	Hunts regularly over The Fen during the breeding season, and also predated the autumn Swallow roost. Almost certainly breeds close by, probably to the east
Water Rail	A regular winter visitor with up to six birds involved. Not known to summer until 2007 when breeding was proved – a juvenile bird was trapped during July
Moorhen	Present in the reedbed during winter
Coot	Occasionally present in the wetter areas of reed during winter
Common Snipe	A single bird was flushed from the reeds during autumn 2007
Common Tern	During 2007, Common Terns breeding to the east of the Stringside Drain defended territories which included part of The Fen reedbed



SPECIES	COMMENTS
Woodpigeon	Common in the peripheral trees. Also breeds in the hawthorn scrub.
Collared Dove	Regularly seen in the trees on the western side of The Fen
Turtle Dove	Two pairs of this increasingly scarce species have bred during recent years
Cuckoo	Present every spring. Perhaps surprisingly, there is no evidence of Cuckoo parasiting the Reed Warblers (usually one of their favourite targets)
Barn Owl	Hunts regularly over The Fen and breeds nearby
Little Owl	Heard occasionally
Tawny Owl	Heard regularly at The Fen and breeds nearby
Swift	Feeds regularly over The Fen during the summer. Few records after the first week in August
Kingfisher	Uses both The Fen and the Stringside Drain regularly. Breeds nearby
Green Woodpecker	Frequently heard around The Fen and doubtless breeds nearby
Great Spotted Woodpecker	Commonly heard and seen around The Fen
Sand Martin	Feeds over The Fen in small numbers during spring and summer. Up to 30 join the Swallows roosting in the reeds from late July until early September
Swallow	Feeds over The Fen during spring and summer. An important post-breeding gathering of birds roost overnight in the reeds from mid July until mid September. Over 500 birds can be present overnight; these are mainly juveniles
House Martin	Feeds regularly over The Fen during summer, though always in small numbers
Pied Wagtail	Breeds nearby. An overnight roost of up to 70 wagtails is sometimes present during the winter months
Wren	A common breeding resident
Duncock	A common breeding resident



SPECIES	COMMENTS
Robin	A common breeding resident
Nightingale	Summer visitor. Two pairs have bred in recent years – formerly they were more common
Stonechat	First seen in March 2008, when two were present
Blackbird	Fairly common breeding resident. More common when autumn berries are available, but then scarce during winter
Fieldfare	Winter visitor in varying numbers. Feeds on the berries (especially hawthorn) and often roosts in the taller hawthorn bushes
Song Thrush	Declining breeding resident. Possibly two pairs
Redwing	Winter visitor and passage migrant in varying numbers
Mistle Thrush	Seen and heard occasionally and probably breeds nearby
Grasshopper Warbler	A breeding summer visitor, more often seen than heard. Up to three pairs breed
Sedge Warbler	Common breeding bird (summer visitor). There is much evidence to suggest that numbers increase significantly at the end of the breeding season when birds from elsewhere gather on The Fen, feeding up to gain weight prior to migration. This is also thought to be true for Reed Warbler, Blackcap and Whitethroat
Reed Warbler	Summer visitor; a common breeding species
Blackcap	Summer visitor; a common breeding species
Garden Warbler	Summer visitor; a fairly common breeding species
Lesser Whitethroat	Summer visitor; an uncommon breeding species (formerly more common)
Whitethroat	Summer visitor; a fairly common breeding species
Chiffchaff	Summer visitor; a common breeding species, increasing in numbers
Willow Warbler	Summer visitor; still a common breeding species but declining in numbers



SPECIES	COMMENTS
Goldcrest	A regular visitor to The Fen outside of the breeding season
Spotted Flycatcher	A nationally declining species. Bred on The Fen until around four years ago, but no records since
Bearded Tit	A single sighting of a pair of birds during 2005
Long-tailed Tit	Common breeding resident
Blue Tit	Common breeding resident
Great Tit	Common breeding resident
Coal Tit	A regular visitor to The Fen outside the breeding season
Willow Tit	Becoming nationally rare, this species still holds on locally with probably a single pair breeding on The Fen
Marsh Tit	Fairly common breeding resident
Treecreeper	Common breeding resident
Jay	Common breeding resident
Magpie	Common breeding resident
Jackdaw	Seen occasionally, breeds nearby
Carrion Crow	Occasionally seen feeding on The Fen
Starling	A winter roost sometimes develops. During November 2007 a remarkable 25,000 birds were present in the reeds
Chaffinch	Fairly common resident
Greenfinch	Common resident. Up to 40 birds can be present after the breeding season
Goldfinch	Occasionally noted during late summer
Linnet	Occasionally noted during late summer



<b>SPECIES</b>	<b>COMMENTS</b>
Lesser Redpoll	Becoming very scarce indeed. This reflects the national trend. Formerly this species was common on The Fen
Bullfinch	Common summer breeding bird. Scarce in winter
Yellowhammer	Common breeding resident. A post-breeding roost normally occurs
Reed Bunting	Common summer breeding bird. Scarce in winter



## APPENDIX 2 - MAMMALS

Species recorded at Boughton Fen during the last 6 years (2003-08) as identified by Allan Hale.

SPECIES	COMMENTS
Noctule Bat	A large bat, seen recently, was thought to be of this species, rather than the similar Serotine Bat
Pipistrelle Bat	Hunts regularly over The Fen, and is occasionally caught by the Bird Ringing Group
Brown Long-eared Bat	More common than the Pipistrelle, and again is occasionally caught by the Bird Ringing Group
Red Fox	Occasionally noted on and around The Fen
Stoat	Occasionally noted on and around The Fen
Weasel	Occasionally noted on and around The Fen
American Mink	Used to be regularly noted, especially near the bridge on the Eastmoor Road, but not seen now for at least four years
Badger	Rarely seen, but much evidence of presence, including a Badger latrine and dead animals found. There is an occupied sett close to The Fen
Otter	Recent sightings on The Fen following a long period of absence
Roe Deer	Regularly seen on The Fen and considered to be increasing
Muntjac	Again regularly seen with considerable evidence of an increasing population
Rabbit	Regular at the higher (and therefore drier) end of The Fen
Grey Squirrel	Occasionally noted around the periphery of The Fen
Harvest Mouse	A newly-constructed nest of this species was found in the reedbed during the summer of 2007





## APPENDIX 3 – REPTILES AND AMPHIBIANS

Species recorded at Boughton Fen during the last 6 years (2003-08) as identified by Allan Hale.

SPECIES	COMMENTS
Common Frog	2007 was a particularly good year
Common Toad	Fairly common
Grass Snake	Seen regularly in the reedbed



## APPENDIX 4 – BUTTERFLIES, DRAGONFLIES AND DAMSELFLIES

12 site visits have been made to Boughton Fen between 19<sup>th</sup> May and 23<sup>rd</sup> August 2008, by Alan Livingstone and Ian Fox. The purpose of the visits was to ascertain the species of Butterflies, Dragonflies and Dameselflies, their numbers and to establish whether those found were breeding on the site or just passing though. The site was divided into 4 zones:

- Zone A – Highland Fen
- Zone B – Middle Fen North
- Zone C – Middle Fen South
- Zone D – Lower Fen

A list of species found, their distribution and where breeding is thought to take place is detailed in the Table below. 16 species of Butterflies, 6 species of Dragonflies and 6 species of Damselflies were recorded during the survey. The majority of sightings were few in numbers and it is considered that these were not breeding on site.

It is proposed to revisit the site in 2009 and repeat the exercise. This will help to confirm or dispel the conclusions and to determine what impact further improvements undertaken to the site have made.

SPECIES	COMMON NAME	WHERE FOUND: A=Highland Fen B= Middle Fen North C=Middle Fen South D=Lower Fen				BREEDING
		A	B	C	D	
BUTTERFLY						
Gonepteryx rhamni	Brimstone	✓				
Polygonia c-album	Comma	✓				
Thymelicus lineola	Essex Skipper	✓				
Pyronia tithonus	Gatekeeper	✓				
Pieris napi	Green Veined White	✓				
Celastrina argiolus	Holly Blue	✓				
Ochlodes venata	Large Skipper			✓	✓	
Pieris brassicae	Large White	✓	✓	✓	✓	Yes



SPECIES	COMMON NAME	WHERE FOUND: A=Highland Fen B= Middle Fen North C=Middle Fen South D=Lower Fen				BREEDING
		A	B	C	D	
<i>Maniola jurtina</i>	Meadow Brown	✓				Yes
<i>Anthocharis cardamines</i>	Orange Tip				✓	
<i>Inachis io</i>	Peacock			✓		Yes
<i>Vanessa atalanta</i>	Red Admiral			✓	✓	
<i>Aphantopus hyperantus</i>	Ringlet	✓				Yes
<i>Thymelicus sylvestris</i>	Small Skipper			✓		
<i>Aglais urticae</i>	Small Tortoiseshell		✓			
<i>Pararge aegeria</i>	Speckled Wood	✓				Yes
<b>DRAGONFLY</b>						
<i>Aeshna grandis</i>	Brown Hawker	✓		✓		Possible
<i>Aeshna mixta</i>	Migrant Hawker	✓				
<i>Libellula depressa</i>	Broad Bodied Chaser		✓	✓		
<i>Libellula quadrimaculata</i>	Fourspot Chaser	✓	✓			
<i>Orthetrum cancellatum</i>	Blacktailed Skimmer		✓			
<i>Sympetrum striolatum</i>	Common Darter				✓	
<b>DAMSELFLY</b>						
<i>Calopteryx splendens</i>	Banded Demoiselle		✓		✓	Yes
<i>Coenagrion puella</i>	Azure		✓	✓	✓	Yes
<i>Enallagma cyathigerum</i>	Common Blue	✓	✓	✓	✓	Yes
<i>Ischnura elegans</i>	Blue-Tailed		✓	✓	✓	



SPECIES	COMMON NAME	WHERE FOUND: A=Highland Fen B= Middle Fen North C=Middle Fen South D=Lower Fen				BREEDING
		A	B	C	D	
Phrrhosoma numphula	Large Red	✓	✓	✓	✓	Yes
Coenagrion pulchellum	Variable		✓			



## **APPENDIX 5 – MOTHS**

The site was surveyed on 21<sup>st</sup> July by Mike Ottley and Jackie Welton and 26<sup>th</sup> July 2008 by Karl Charters of the Norfolk Wildlife Trust. The results of his findings are identified in the Table below. It is hoped that this exercise will be repeated in 2009.

<b>Taxon</b>	<b>Vernacular</b>	<b>Records</b>	<b>Individuals</b>	<b>Status</b>
<i>Acronicta psi/tridens</i>	Grey/Dark Dagger	1	1	Common
<i>Zeuzera pyrina</i>	Leopard Moth	1	1	Common
<i>Agapeta hamana</i>	Hook-marked Straw Moth	1	1	Common
<i>Agapeta zoegana</i>		1	1	Common
<i>Chilo phragmitella</i>	Wainscot Veneer	2	5	Local
<i>Chrysoteuchia culmella</i>	Garden Grass-veneer	1	6	Common
<i>Crambus pascuella</i>	Grass Veneer	1	3	Common
<i>Crambus lathoniellus</i>	Hook-streaked Grass-veneer	1	10	Common
<i>Catoptria falsella</i>		1	1	Local
<i>Schoenobius gigantella</i>		1	2	Nb
<i>Dipleurina lacustrata</i>		1	1	Common
<i>Elophila nymphaeata</i>	Brown China-mark	1	3	Common
<i>Parapoynx stratiotata</i>	Ringed China-mark	2	4	Common
<i>Eurrhpara hortulata</i>	Small Magpie	1	1	Common
<i>Phlyctaenia perlucidalis</i>		1	1	Local
<i>Udea lutealis</i>		1	1	Common
<i>Pleuroptya ruralis</i>	Mother of Pearl	1	2	Common
<i>Orthopygia glaucinalis</i>		1	1	Common

Taxon	Vernacular	Records	Individuals	Status
<i>Endotricha flammealis</i>		1	1	Common
<i>Euthrix potatoria</i>	Drinker	1	8	Common
<i>Thyatira batis</i>	Peach Blossom	1	1	Common
<i>Scopula immutata</i>	Lesser Cream Wave	1	2	Local
<i>Idaea rusticata atrosignaria</i>	Least Carpet	1	1	Local
<i>Idaea biselata</i>	Small Fan-footed Wave	1	2	Common
<i>Idaea aversata</i>	Riband Wave	2	2	Common
<i>Xanthorhoe spadicearia</i>	Red Twin-spot Carpet	1	1	Common
<i>Xanthorhoe ferrugata</i>	Dark-barred Twin-spot Carpet	1	2	Common
<i>Scotopteryx chenopodiata</i>	Shaded Broad-bar	1	2	Common
<i>Epirrhoe alternata</i>	Common Carpet	1	1	Common
<i>Ecliptopera silaceata</i>	Small Phoenix	1	1	Common
<i>Hydriomena furcata</i>	July Highflyer	2	2	Common
<i>Euphyia unangulata</i>	Sharp-angled Carpet	1	1	Local
<i>Perizoma alchemillata</i>	Small Rivulet	1	1	Common
<i>Eupithecia centaureata</i>	Lime-speck Pug	1	1	Common
<i>Pasiphila rectangulata</i>	Green Pug	1	2	Common
<i>Abraxas grossulariata</i>	Magpie Moth	1	1	Common
<i>Lomaspilis marginata</i>	Clouded Border	1	2	Common
<i>Opisthograptis luteolata</i>	Brimstone Moth	1	3	Common
<i>Epione repandaria</i>	Bordered Beauty	1	2	Common

<b>Taxon</b>	<b>Vernacular</b>	<b>Records</b>	<b>Individuals</b>	<b>Status</b>
Ennomos alniaria	Canary-shouldered Thorn	1	1	Common
Selenia dentaria	Early Thorn	1	2	Common
Biston betularia	Peppered Moth	1	1	Common
Alcis repandata	Mottled Beauty	1	1	Common
Ectropis bistortata	Engrailed	1	1	Common
Cabera exanthemata	Common Wave	1	1	Common
Sphinx ligustri	Privet Hawk-moth	1	2	Common
Laothoe populi	Poplar Hawk-moth	1	1	Common
Deilephila elpenor	Elephant Hawk-moth	1	2	Common
Furcula furcula	Sallow Kitten	1	4	Common
Notodonta dromedarius	Iron Prominent	1	2	Common
Notodonta ziczac	Pebble Prominent	1	2	Common
Pheosia tremula	Swallow Prominent	1	1	Common
Ptilodon capucina	Coxcomb Prominent	1	2	Common
Pterostoma palpina	Pale Prominent	1	1	Common
Clostera curtula	Chocolate-tip	1	1	Local
Euproctis similis	Yellow-tail	1	5	Common
Leucoma salicis	White Satin	1	3	Local
Thumatha senex	Round-winged Muslin	1	2	Local
Miltochrista miniata	Rosy Footman	1	4	Local
Eilema griseola	Dingy Footman	1	1	Common



Taxon	Vernacular	Records	Individuals	Status
<i>Eilema complana</i>	Scarce Footman	1	14	Local
<i>Spilosoma luteum</i>	Buff Ermine	1	1	Common
<i>Phragmatobia fuliginosa</i>	Ruby Tiger	1	4	Common
<i>Ochropleura plecta</i>	Flame Shoulder	1	3	Common
<i>Noctua pronuba</i>	Large Yellow Underwing	1	13	Common
<i>Noctua fimbriata</i>	Broad-bordered Yellow Underwing	1	5	Common
<i>Noctua janthe</i>	Lesser Broad-bordered Yellow Underwing	1	3	Common
<i>Noctua interjecta caliginosa</i>	Least Yellow Underwing	1	2	Common
<i>Xestia triangulum</i>	Double Square-spot	1	2	Common
<i>Discestra trifolii</i>	Nutmeg	1	2	Common
<i>Mamestra brassicae</i>	Cabbage Moth	1	1	Common
<i>Melanchra persicariae</i>	Dot Moth	1	1	Common
<i>Lacanobia oleracea</i>	Bright-line Brown-eye	1	3	Common
<i>Mythimna ferrago</i>	Clay	1	2	Common
<i>Mythimna straminea</i>	Southern Wainscot	1	3	Local
<i>Mythimna impura</i>	Smoky Wainscot	1	3	Common
<i>Acronicta rumicis</i>	Knot Grass	1	1	Common
<i>Craniophora ligustri</i>	Coronet	1	4	Local
<i>Amphipyra pyramidea</i>	Copper Underwing	1	1	Common
<i>Ipimorpha subtusa</i>	Olive	1	2	Local
<i>Cosmia trapezina</i>	Dun-bar	1	4	Common



<b>Taxon</b>	<b>Vernacular</b>	<b>Records</b>	<b>Individuals</b>	<b>Status</b>
<i>Apamea monoglypha</i>	Dark Arches	1	5	Common
<i>Apamea lithoxylaea</i>	Light Arches	1	1	Common
<i>Apamea ophiogramma</i>	Double Lobed	1	5	Local
<i>Oligia strigilis</i> agg.	Marbled Minor agg.	1	3	Common
<i>Mesapamea secalis</i>	Common Rustic	1	1	Common
<i>Photedes minima</i>	Small Dotted Buff	1	2	Common
<i>Eremobia ochroleuca</i>	Dusky Sallow	1	3	Common
<i>Hydraecia micacea</i>	Rosy Rustic	1	2	Common
<i>Celaena leucostigma</i>	Crescent	1	1	Local
<i>Hoplodrina alsines</i>	Uncertain	1	5	Common
<i>Hoplodrina blanda</i>	Rustic	1	3	Common
<i>Hoplodrina ambigua</i>	Vine's Rustic	1	1	Local
<i>Diachrysia chrysitis</i>	Burnished Brass	1	1	Common
<i>Abrostola tripartita</i>	Spectacle	1	2	Common
<i>Laspeyria flexula</i>	Beautiful Hook-tip	1	2	Local
<i>Herminia grisealis</i>	Small Fan-foot	1	2	Common
<i>Hepialus humuli humuli</i>	Ghost Moth			Common
<i>Idaea dimidiata</i>	Single-dotted Wave			Common
<i>Selenia tetralunaria</i>	Purple Thorn			Common
<i>Crocallis elinguararia</i>	Scalloped Oak			Common
<i>Peribatodes rhomboidaria</i>	Willow Beauty			Common



Taxon	Vernacular	Records	Individuals	Status
Noctua comes	Lesser Yellow Underwing			Common
Mythimna pallens	Common Wainscot			Common
Caradrina morpheus	Mottled Rustic			Common



## **APPENDIX 6 – FLORA**

The site was surveyed on 28<sup>th</sup> August 2008 by Frances Schumann and the Norfolk Flora Group. The results of their findings are identified in the Table below. It is hoped that this exercise will be repeated in 2009.

<b>SPECIES</b>	<b>COMMON NAME</b>
<i>Aegopodium podagraria</i>	Ground-elder / Goutweed
<i>Alnus glutinosa</i>	Alder
<i>Angelica sylvestris</i>	Wild Angelica
<i>Arctium minus</i>	Lesser Burdock / Burdock
<i>Bryonia dioica</i>	White Bryony
<i>Calamagrostis canescens</i>	Purple Small-reed
<i>Caltha palustris</i>	Marsh Marigold
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Carex acutiformis</i>	Lesser Pond-sedge
<i>Carex disticha</i>	Brown Sedge
<i>Carex elata</i>	Tufted Sedge
<i>Carex flacca</i>	Glaucous Sedge
<i>Carex riparia</i>	Great Pond-sedge
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium palustre</i>	Marsh Thistle
<i>Cladium mariscus</i>	Saw Sedge / Fen Sedge
<i>Crataegus monogyna</i>	Hawthorn
<i>Dactylis glomerata</i>	Cock's-foot



SPECIES	COMMON NAME
<i>Dipsacus fullonum</i>	Wild Teasel
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Epilobium parviflorum</i>	Hoary Willowherb
<i>Equisetum palustre</i>	Marsh Horsetail
<i>Eupatorium cannabinum</i>	Hemp Agrimony
<i>Festuca gigantea</i>	Giant Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galeopsis bifida</i>	Bifid Hemp-nettle
<i>Galium aparine</i>	Cleavers / Goosegrass
<i>Galium palustre</i>	Marsh Bedstraw
<i>Geranium robertianum</i>	Herb-Robert
<i>Glyceria maxima</i>	Reed Sweet-grass
<i>Heracleum sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Humulus lupulus</i>	Hop
<i>Hypericum tetrapterum</i>	Square-stalked St. John's-wort
<i>Iris pseudacorus</i>	Yellow Iris / Yellow Flag
<i>Juncus articulatus</i>	Jointed Rush
<i>Juncus effusus</i>	Soft Rush
<i>Juncus subnodulosus</i>	Blunt-flowered Rush



SPECIES	COMMON NAME
Lamium album	White Dead-nettle
Lathyrus pratensis	Meadow Vetchling
Lotus pedunculatus	Large Bird's-foot-trefoil
Lycopus europaeus	Gipsywort
Lysimachia vulgaris	Yellow Loosestrife
Lythrum salicaria	Purple-loosestrife
Mentha aquatica	Water Mint
Myosotis laxa	Tufted Forget-me-not
Myosoton aquaticum	Water Chickweed
Persicaria maculosa	Redshank / Redleg / Persicaria
Phalaris arundinacea	Reed Canary-grass
Phragmites australis	Common Reed
Poa trivialis	Rough Meadow-grass
Prunus spinosa	Blackthorn
Ranunculus flammula	Lesser Spearwort
Ranunculus repens	Creeping Buttercup
Ribes uva-crispa	Gooseberry
Rosa canina agg.	Dog Rose
Rubus fruticosus agg.	Bramble / Blackberry
Salix alba	White Willow
Salix cinerea subsp. cinerea	Grey Willow



SPECIES	COMMON NAME
Salix triandra	Almond Willow
Salix viminalis	Osier / Common Osier
Sambucus nigra	Elder
Samolus valerandi	Brookweed
Scrophularia auriculata	Water Figwort / Water Betony
Scutellaria galericulata	Skullcap
Senecio vulgaris	Groundsel
Solanum dulcamara	Bittersweet / Woody Nightshade
Sonchus arvensis	Corn Sow-thistle
Sonchus asper	Prickly Sow-thistle
Stachys sylvatica	Hedge Woundwort
Symphytum x uplandicum	Russian Comfrey (hybrid)
Tanacetum vulgare	Tansy
Thalictrum flavum	Common Meadow-rue
Typha latifolia	Great Reedmace / False Bulrush
Urtica dioica	(Stinging) Nettle
Valeriana officinalis	Common Valerian
Viburnum opulus	Guelder-rose
Vicia cracca	Tufted Vetch
Ranunculus lingua found 1988 but not 2008	Greater Spearwort