



National Trust

Wicken Fen Wildlife

The Recording and Research Newsletter

New Edition 6

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Wicken Fen Nature Reserve is owned by the National Trust and is managed by a professional team and dedicated volunteers, guided by NT advisors and a highly experienced and knowledgeable Local Committee. Wicken Fen National Nature Reserve, Lode Lane, Wicken, Cambs. CB7 5XP (Tel: 01353 720274)



Introduction

Happy New Year and welcome to the sixth edition of the Wicken Fen Recording and Research Newsletter.

In this edition, we highlight many of the discoveries of rare and interesting species made recently at Wicken, summarise some of the latest research and discuss how the management of the Nature Reserve is evolving as we move forward with the Vision project to expand the reserve.

The photo shows a sculpture of a Victorian Entomologist, based on a photograph of Mr Albert Houghton at Wicken, paid for by Sustrans and erected by the Trust on the side of the Lodes Way cycle path just south of Reach Lode bridge.

Mr Houghton was one of the eminent entomologists who frequented the Fen in the 1890s when Wicken was famous as a site to collect rare insects, especially moths. We feel Mr Houghton would have been very pleased to learn that 2013 was an outstanding year for moths at Wicken, with high numbers recorded, several species re-discovered after decades, and a remarkable 19 species discovered new to the Wicken Fen moth list.

Wildlife at Wicken

Stuart Warrington

After 114 years of looking after one of Britain's oldest nature reserves, we might expect to have found almost all of the species that live on the reserve. But nature is not like that. It changes, ebbs and flows, and there are always new discoveries to be made. And 2013 was a rather special year for wildlife at Wicken and certainly made up for the disappointing dampness of 2012.

Wicken Fen is incredibly rich in species and at the start of the year the total was 8529 (we believe it is the most species rich site known in England), so to be able to add **52** new species to the list is remarkable. The all site, all recorded species total is now **8581**. There are details of many of these discoveries later in this Newsletter, however, the three groups that contributed most of these extra species were the moths (19 species) and the beetles (19 species), plus lichens (5), fungi (2), plants (2), and one each for slime mould, true bug, bird, fly and bee.

2013 was also a successful year for some of the Fen's more regular residents. Early in the year the omens didn't look good with a wet, cold spring following a harsh winter, but then temperatures began to steadily rise, the reserve burst into life and wildlife got on with the important task of raising the next generation.

Deep in the main reedbed, a pair of Bitterns bred for only the second recorded time at Wicken, together with three breeding female Marsh Harriers. The long summer was also good for Bearded Tits with a number of pairs managing to raise several broods and over 30 youngsters fledged. Other breeding successes included two pairs of Barn Owls and a pair of Stonechats (Cambridgeshire's only pair).

2012 was a disastrous year for Cuckoos with not a single chick successfully fledged but this year eight cuckoos returned to the Fen, including three females. Based on observations by Professor Nick Davies of Cambridge University, we believe that ten Cuckoo eggs were laid in reed warbler nests with three (possibly four) Cuckoos successfully fledging.

A pair of Common Cranes was regularly seen at Wicken Fen this spring. It is almost certain that these birds were too young to breed, but bearing in mind that cranes can live for up to 40 years, it will be interesting to see what happens in the next year or two. Other uncommon birds visiting the fen included Ospreys, possibly on route to their breeding grounds at Rutland Water, a Pectoral Sandpiper, three Black-winged Stilts, a Glossy Ibis and a Great White Egret.

Some species fared less well – the cold spring meant that the maternity roost of Soprano Pipistrelle bats that live in the wall of the Wicken Fen café were late emerging from hibernation and the lack of insects in spring meant that fewer were able to breed this year. There were still 200 in the roost, down a little from the 230 peak two years ago.

In this issue: Weather in 2013, Site Management, Birds (ringing review, passerine population trends, nest recording), a wonderful year for moths and beetles, the lichen survey, other notable species records, and summaries of some ongoing research into carbon flux, the fenland flora and Wicken's orchids..

The weather in 2013

The weather in summer 2013 was so much better than the very wet year of 2012 (when more than twice the average annual rainfall fell in Cambridgeshire and July was the wettest month). Overall in 2013, the rainfall was about 10% below the long term average, but we did have the driest June for over a decade and July was fine too with 19 consecutive dry days (but the monthly total rainfall was greatly affected by three thunderstorms). We had a noticeably late spring in 2013, after experiencing several cold spells (some with snowfall) from January to mid-April, and then the temperatures climbed. July and August were especially hot with averages of 25.6 C and 23.7 C compared to the 30-year means of 17.3 and 17.1 C respectively. Weather data obtained from Cambridge Botanic Garden.

<http://www.botanic.cam.ac.uk/> (click the link to 'The Garden' and then 'Climate & Soils')

Site Management in 2013

A very detailed Site Management report is produced quarterly by Martin Lester for the Local Committee. Here are some highlights.

The construction of a low bund (max 1 metre height) around the southern part of Burwell Fen to hold water was reported in the 2012 Newsletter. Thus by Spring 2013 we had another large area of shallow water for birds (see photo), similar to those on Baker's Fen, which slowly evaporated away leaving a few deeper pools by mid-summer. It proved to be an immediate great success for birdlife.



A view from the east, across the new shallow flooded wetland of Burwell Fen south in April 2013. Flocks of lapwing and black-headed gull immediately colonised and nested here.

The wet summer of 2012, was followed by a cold, wet winter in 2013, so the Trust took the decision to close the nature trail around the outside of the Sedge Fen early in the New Year. The Boardwalk remained open, but even that had some shallow floods in places. The late spring, meant that evapo-transpiration did not begin to dry out the fen surface until late May, so the nature trail remained closed until June, in order to minimise footfall damage to the peat and vegetation.

Our large grazing animals have a key role to play in managing the nature reserve at Wicken and a major re-organisation was started in 2013 of the numbers and locations of these animals, and this will continue into 2014. At 31 December 2013, we had 107 animals. On Burwell Fen there were 18 cattle; Adventurers' Fen had 8 cattle and 56 koniks; on Verrall's Fen there were 7 cattle and 16 koniks (and of course there are our two dear old ladies on Little Breed Fen).

All of the Drovers and the 'litter' fields on the Sedge Fen were cut to schedule in late summer-autumn 2013, with the cut material lifted and moved into 'Duffy piles' in the carr woodland. However, the summer cutting of *Cladium* sedge fields was not possible and we are very keen to get back to this work in 2014 (peat wetness and weather permitting).





18 Highland Cattle were moved across to Burwell Fen in 2013. They will be joined by 28 Konik ponies in 2014, so our extensive mixed grazing herds will be in action across Burwell Fen this summer.

Sad news to report was that the severe storms in January 2014 that battered the country, also claimed a victim at Wicken. The historic, old Windpump lost its sails due to the combination of wear and tear, and probably the extra stress of the gales. It will be repaired as soon as we can get onto that area of the Sedge Fen.



The old Wicken Windpump, photo taken in January 2014, showing that the sails have dropped, as the wrought iron spindle sheared off (the spindle was probably over 100 years old).

Compare it to the picture on p12.

The Two Wicken Fen Websites

The main Wicken Fen website for visitors, opening times and events is:

www.nationaltrust.org.uk/wickenfen/

The Wicken Fen Natural History and Research website is at: www.wicken.org.uk/

Birds

Wicken Fen Bird Ringing Group. Report of 2013 activities

Chris Thorne

The Wicken Fen (Bird Ringing) Group has been in continuous operation for 46 years (founded 1968). By the end of the year 2013, the overall ringing total was 106,894 birds and of this total, 586 birds have subsequently been reported away from the Fen (84 of them abroad).

The Group, at 31 December 2013, numbered 42 members and 22 registered 'friends'. This represents a slight rise in membership, while the coverage at the Fen was very similar to that in 2012. Ringing operations with nets were conducted on 188 different days, involving 4303 member-hours. These netting sessions were held in every month, with the majority of sessions, 90, being carried out on St. Edmund's Fen (Compartments 30-35). 53 sessions were at the Reedbed (Compartments 51-53), 28 were at North Field/Gallops (Compartments 20-23), 9 at the Brickpits, working from the Roger Clarke Hide (Compartment 24) and 14 on the ride between Sedge Fen Drove and Gardiner's Drove (Compartment 15), although this area was so wet that no ringing could take place until August. There were also 14 sessions in the more 'remote' areas (Burwell Fen / Guinea Hall / Tubney Fen / Westmere; Compartments 201-205, 108, 303-308 and 48-49 respectively). In addition, many days were spent in nest-finding, and the subsequent ringing of nestling birds (291 in all). These involved nest-boxes and 'open nests', the latter involving almost all areas of the "old" and "new" (Vision land) Fen.

The 2013 ringing total was 4112 birds, of 62 different species. In addition to the 4112 'new' birds in 2013, 721 'retraps' (birds already bearing rings) had been originally ringed at the Fen in years earlier than 2013, and a further 21 were 'controls' (birds originally ringed away from the Fen, but captured at Wicken). Thus a total of 4854 different birds were handled. Several species topped the 100 mark, the highest scores being Reed Warbler with 484 ringed, Reed Bunting 388, Blue Tit 327, Blackcap 242, Meadow Pipit 238, Swallow 214, Great Tit 199, Chaffinch 188, Sedge Warbler 186, Goldfinch 171, Lesser Redpoll 149, Chiffchaff 136, Wren 134, Blackbird 125, Robin 114 and Greenfinch 104; the next most numerous were Long-tailed Tit 80, Dunnock 66, Whitethroat 52, Bullfinch 49, Pied Wagtail 47, Redwing 42, Bearded Tit and House Sparrow both 41, Willow Warbler 38, Song Thrush and Goldcrest both 31.



Bearded Tit (left) 41 were ringed and Chiffchaff (right) 136 were ringed at Wicken in 2013,

The Meadow Pipit and Bearded Tit totals are all-time Wicken records. Other Wicken Fen ringing records broken or equalled in 2013 were the 14 Stock Doves, 10 Yellow Wagtails and 8 Skylarks.

The more unusual species normally ringed in small numbers remained in much the same small numbers in 2013, such as Sparrowhawk 3, Water Rail 2, Collared Dove 1, Cuckoo 1, Tawny Owl 1, Kingfisher 4, House Martin 3, Grasshopper Warbler 5, Spotted Flycatcher 1, Firecrest 1, Coal Tit 1, Jay 1, Magpie 1, Tree Sparrow 1, Brambling 1 and Siskin 3. One new species was added to the Group's ringing list, the 3 young Black-headed Gulls from the new colony on Burwell Fen and this now stands at 106 species.

After the very poor weather of 2012, when the breeding success for many species was low, 2013 saw something of a recovery (although not back to 2011 levels and sometimes patchy). Of the commoner warblers, Sedge, Reed, Whitethroats and Chiffchaffs had higher ringing totals in 2013 than in 2012, but this still left them at only 67%, 56%, 37% and 57%, respectively, of their 2011 levels. Garden Warblers, Blackcaps and Willow Warblers fared worse, their 2013 totals remaining below both their 2012 (33%, 83% and 90% respectively) and 2011 (22%, 37% and 70% respectively) levels.

Wintering birds also showed modest numbers in 2013. Blackbird and Song Thrush (both of course breeders as well) were only just above their 2012 levels, while Redwing, Fieldfare and Goldcrest were well below. Lesser Redpolls, however, were very numerous, their ringing total of 149 being the highest for several years.

The species with the largest increase in numbers caught were mainly those that repaid a lot of effort by a small number of dedicated Group members, using lure calls in the autumn at the Reedbed, Burwell or Tubney Fens. These were the Reed Buntings (388), Meadow Pipits (238), Pied Wagtails (47), Yellow Wagtails (10) and Skylarks (8).

During 2013 we received news of the origins of some ringed birds recently trapped at Wicken Fen – a Reed Warbler was from France and three from elsewhere in Britain, a Meadow Pipit and a Chaffinch from Yorkshire, a Greenfinch from Lincolnshire, a Sand Martin from Teesmouth and a Swallow from Norfolk. Wicken-caught Lesser Redpolls were from Lincolnshire, Suffolk, Surrey and Sussex, showing something of the movements of these attractive birds. The total of ringed “imports” to Wicken Fen during the lifetime of the Group so far stands at 260, with 21 of these coming from abroad.

Several Wicken-ringed birds also travelled far during 2013 – a Chiffchaff and a Reed Warbler to Portugal, a Sedge and a Reed Warbler both to France. Within Britain, Lesser Redpolls went to Lincolnshire and Nottinghamshire, Reed Warblers to Hertfordshire, Kent, Suffolk and Sussex, Sedge Warblers to Hertfordshire and Kent, a Goldfinch to Lincolnshire, a Cetti’s Warbler to Bedfordshire and a Greenfinch to Suffolk. Shorter journeys, to other part of Cambridgeshire, were made by Blackcaps, Goldfinches, Greenfinches, Sedge Warblers and a Sparrowhawk.

Longevity records broken in 2013 were a Greenfinch at 8 years 0 months and a Wren at 5 years 6 months; a Reed Bunting came close to its record at 8 years 11 months. The oldest birds (or rather the longest intervals between ringing and recapture) of other species were a Long-tailed Tit at 6 years 7 months, a Robin and a Bullfinch both at 6 years 4 months, a Chaffinch at 6 years 0 months, a Reed Warbler at 5 years 11 months, a Blackbird at 5 years 10 months, a Great Spotted Woodpecker at 5 years 9 months, a Cetti’s Warbler and a Great Tit both at 5 years 6 months and a Blue Tit at 5 years 2 months.

In summer 2013 we continued (for the 44th successive year) our “Standard Sites Sessions” (SSS). These special ringing visits involve placing nets in exactly the same sites, for exactly the same time, at the same dates every year, and enable us to monitor the breeding population of birds at the Fen. In addition, in 2013, we continued, for its third year, the parallel monitoring system called “Constant Effort Sites” at the Reedbed (REECES). An analysis of the REECES work in 2013 confirmed that some adult bird numbers were less than those seen in 2012 (a result of the poor productivity of young in that year), but that 2013 productivity was a little better. A decision was taken, at a meeting of the Group in November 2013, to discontinue the “Standard Sites Sessions”, but to replace them with a second CES (to be called STECES) from the 2014 season, with that STECES to encompass an area very close to, and overlapping with, the former SSS (to allow comparison).

During 2013, harnessing the computer skills of several of the Group members, the task of digitizing the backlog of the Group’s ringing and retrap data (going back to 1968) has been continued, and is now nearing completion. When complete, there will be some 180,000 records, a very valuable database.

The Group is grateful to the National Trust for granting permission for ringing on the Reserve and for assisting financially with expenses. In turn, the Group in 2013 assisted the National Trust staff by putting on ringing demonstrations for visitors to the Fen, including some at the Roger Clarke Hide. Group members also collaborated with Anglia Ruskin University for a second year by demonstrating ringing to its MSc (Animal Behaviour) students. Scientific support was also given, by Group members, to the Great and Blue Tit studies of

Dr. Hannah Rowland and also to the Jackdaw work of Ms. Gabrielle Davidson and Ms. Alison Greggor at Madingley Wood and Madingley Hall.

The Secretary has maintained his production of regular Bulletins (7 in year 2013), keeping Members and Friends informed, not only of ringing activities, but also of general bird observations at Wicken Fen. He also produced monthly summaries of the Group's activities, which are displayed in the Thorpe Building and included in the National Trust Wicken Fen website (www.wicken.org.uk).

Anyone interested in joining the Group is welcome to contact him, Dr. Chris Thorne, St. Catharine's College, Cambridge, CB2 1RL (phone 01954 210566, email cjrt@cam.ac.uk).

Do nature reserves protect passerines from population declines similar to those in the wider countryside?

Peter Bircham

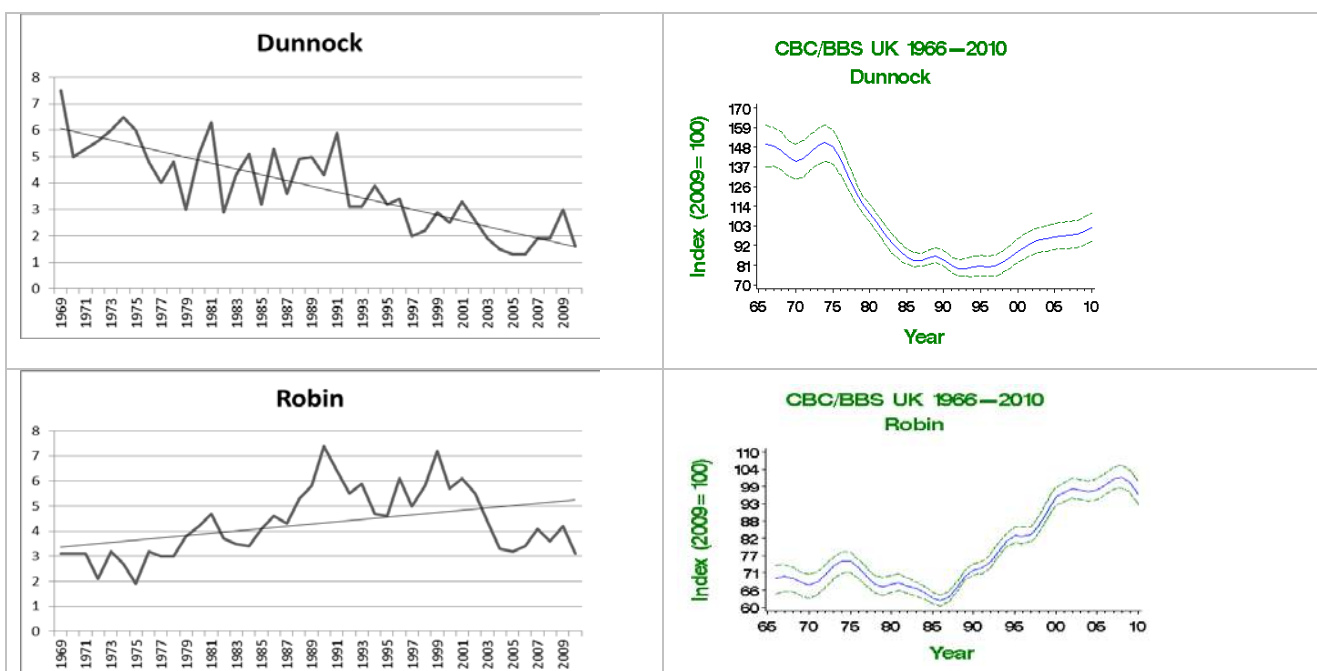
It might be supposed that nature reserves would protect birds from the population pressures that are found in the wider countryside. However ringing results from Wicken Fen NNR show that the changes in populations of certain passerines have mirrored the trends shown by the BTO's consolidated population monitoring. Throughout the period 1969 to present, apart from four standardised sessions each summer, the Wicken Fen Group has largely been ringing birds in the random way that is characteristic of most ringing operations. Given the duration of the operation it is possible to make a comparison of the number of certain species of birds ringed each year to provide an indication of trends in populations using data from 1969-2010 and to compare them with national trends.

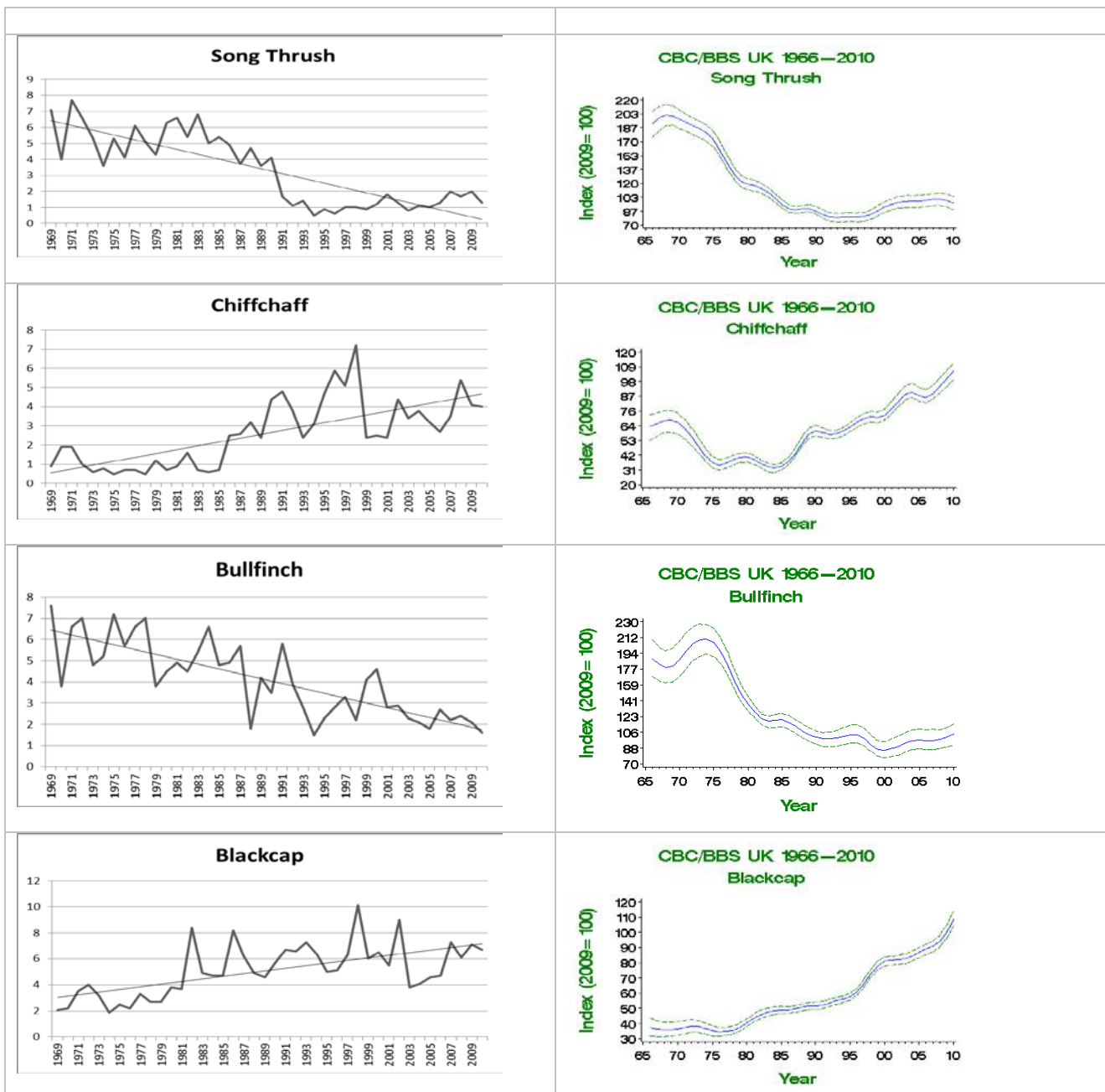
Source of the figures

Using a simple method of calculating Relative Abundance, the figures were arrived at by dividing the annual number of a given species ringed by the total number of all birds ringed in that year multiplied by 100. Only those species that have been caught without any specific luring or directed catching attempts have been included in this analysis.

Population trends

The results of the analysis for six selected species appear in a series of figures below (left). In addition the BTO trends are presented alongside (right) for comparison.





These figures, both the increases and declines, show remarkable similarity to those from the BTO's national trends, which is surprising since the site, as a National Nature Reserve (NNR), is managed sympathetically for birds. While Wicken Fen is a semi-natural oasis within an area of open intensively-farmed arable land, there has been little discernable change in the fenland countryside over this period of time. Habitat change seems, therefore, unlikely to be responsible. Possible causes, namely other changing farming practices such as the extensive and efficient use of agro-chemicals and the dominance of autumn-sown cropping seem more likely culprits. Another probable change is that fenland farming has become hugely efficient and now it is rare to find any uncultivated, unsprayed field corners or margins.

The greatest rate of decline was shown by the Tree Sparrow from a relative abundance figure as high as 11.1% in 1970 to zero by 1991 (and for several subsequent years). Similarly Reed Bunting from a mean relative abundance of 9.1 (SE +/-0.92) in the ten years 69-78 down to a mean of 0.81 (SE +/-0.2) in the ten years 1989-98. Two other species, Spotted Flycatcher and Willow Tit have declined to zero but in both cases from a low starting point. Changes specific to Wicken Fen include evidence of long-term drying out, a loss of under-storey in the Wicken carr (wet woodland) as a result of significant increases in deer numbers, and a loss of extent of carr as large areas of the Sedge and Verrall's Fen have been restored to open fen habitat, especially from 2000 to 2005.

Declines to a lower, but now stable population include Song Thrush. In the first ten years of ringing Song Thrush had a higher mean relative abundance (5.5% +/-0.43) than Blackbird in the same period (4.1% +/- 0.45). Dunnock, showed a large decline, Bullfinch, too. The Wicken data also reflects increasing populations of Wren, Robin, Blackcap and Chiffchaff

Cautionary note

Use of these data must be accompanied by a note of caution. Over a period this long there is inevitably inconsistency of effort (net/man/hours) and variability of weather conditions. Furthermore since ringing takes place at Wicken more or less throughout the year, these data have not been subdivided for season and although winter effort has historically been much less than summer, the Relative Abundance figures show overall population and not just breeding population (unlike the BTO figures). They also show adults and juveniles combined and they do not include birds retrapped in that year that had been ringed in a previous year and so do not reflect the total known population.

Acknowledgements

Thanks are due to the many members of the Wicken Fen Group over the period 1968-2010 who have in some way contributed to the gathering of the data used in this analysis and the National Trust staff who have supported the work of the Wicken Fen Group with consideration and encouragement over the whole period.

Wicken Fen Nest Record Summary 2013

Carole Davis, Wicken Fen Nesting Group

Nest recording continued at Wicken Fen throughout the breeding season in 2013 with a small number of volunteers from Wicken Fen Group spending considerable time finding and monitoring nests from a range of species across the fen. The group is gaining knowledge and experience in nest finding, which has resulted in an increase in the number of nests monitored despite the difficulties presented by the weather in 2012 and 2013. The breeding season in 2013 started very slowly due to the cold spring weather. The BTO reported that laying dates for resident species was delayed by up to 12 days compared to the five-year average.

The nesting activities on the fen can be split into three groups:

1. We have in excess of 80 small nest boxes used by Blue Tits and Great Tits (and a few Wrens) sited mainly in St Edmunds Fen but also in Little Breed Fen (Gallops field) and at the Reedbed pools.
2. We have several large boxes spread at various locations to encourage Barn Owls but which are often favoured by Jackdaws and Stock Doves.
3. The most difficult challenge is the location of open nests of passerines. In 2013, the group focussed on specific areas of the fen including parts of St Edmund's Fen and the short scrub at the far end of Monk's Lode. Carl Barimore (BTO Nest Records Organiser), Alan Wadsworth and Ann Beeby spent many hours searching for and monitoring nests with the aim of providing complete nest records for each nest as well as ringing the pulli if appropriate.

Small Boxes

Carole Davis took over the monitoring of the small nest boxes in 2013 and was helped by Bernard Siddle. The nest boxes were emptied and repaired ready for the breeding season with weekly monitoring of the boxes carried out from early April until the last broods fledged. Of the 83 nests monitored, 43 reached egg laying stage. Of these 26 were predated with 9 Blue Tit nests producing a total of 72 young and 8 Great Tit nests producing a total 47 young, all of which were successfully ringed. In addition 3 nest boxes at the Reedbed pools were successfully occupied by Wrens, five pulli of which were ringed.

As can be seen from Table 1, the productivity of these two species was up from the very low success rate of 2012 but still well below 2010 and 2011. There was a high rate of predation at the egg stage and also a small number of very late broods, none of which survived.

Table 1. Summary of results from Great Tit and Blue Tit nest box monitoring 2009 to 2013

Year	Great Tit No. of nests	Average no of eggs	GT Success rate	GT Failure rate	Year	Blue Tit No. of nests	Average no of eggs	BT Success rate	BT Failure rate
2009	21	5.2	48%	52%	2009	18	5.3	39%	61%
2010	23	6.8	52%	43%	2010	18	7.3	72%	28%
2011	21	8.1	52%	48%	2011	20	8.6	65%	30%
2012	23	7	22%	78%	2012	26	7.2	19%	69%
2013	18	5.5	28%	72%	2013	25	8.5	40%	60%

“Success rate” and “Failure rate” do not always add up to 100%, due to uncertainty in a few cases.

The most exciting nest record of 2013 was the finding of a Bearded Tit nest with six eggs in an artificial nest which had been constructed by Alan Wadsworth in 2012. This provided the first confirmed breeding of Bearded Tit on the Fen and resulted in six pulli being ringed on 30th May 2013. Two of these birds have subsequently been retrapped.

Large Boxes

Neil Larner took the lead in monitoring the large nest boxes across the fen, supported by Chris Quy.

Barn Owl: Sadly, one of our most successful nests in an old tank failed this year, possible due to the fact that the female owl had been found dead in the tank in 2012. Two other boxes were successful with 3 young ringed at Badcock’s Farm and 2 ringed at Guinea Hall Barn, all of which fledged successfully.

Jackdaw: Three boxes had successful broods of young which were all ringed.

Stock Dove: The only successful Stock Doves were at Oily Hall barn where three broods each with 2 chicks were ringed and fledged successfully.

Open Passerine Nests

Carl Barimore, Alan Wadsworth and Ann Beeby all spent a considerable amount of time at the fen finding and monitoring open passerine nests. We are very grateful to Carl for his continued input into the nesting activities at Wicken Fen and for making his weekly trips from Thetford to support and encourage the group.

The group was also pleased with the record number of Chiffchaff nests and with the encouraging numbers of other open passerine nests including Goldfinch and Linnet.

The Swallow nest in the Roger Clarke hide produced two broods again this year and entertained visitors to the hide with the adults swooping in and out of the hide windows. There was also a successful nest in the rafters of the National Trust tractor shed which caused some entertainment when the young from a second brood were found on the floor of the shed, presumably having been ejected by another male (as described by Springwatch this year).

The Reed Warbler nests have again been monitored by Nick Davies and his team from Cambridge University but the results from these have not yet been made available to the group.

Table 2 summarises the number of open nests found and monitored in 2013 for passerines species. The number of successful nests represents those where there has been confirmation that the young had fledged – there are also several unknown outcomes which may also have been successful.

Table 2. Passerine Nests monitored in 2013

Species of Passerine	Number of Nests	Number of Successful Nests
Blackcap	4	1
Blackbird	4	2
Bullfinch	2	1
Chaffinch	1	0
Chiffchaff	10	7
Goldfinch	5	2
Great Spotted Woodpecker	1	0
Linnet	6	2
Reed Bunting	1	1
Reed Warbler	5	2
Robin	1	0
Song Thrush	2	0
Swallow	9	6
Whitethroat	5	2
Willow Warbler	1	1
Woodpigeon	6	0
Wren	5	4
Yellowhammer	1	1

Other nests: Common Terns again bred successfully on the artificial raft on Pout Hall pond. Three chicks were ringed and fledged successfully. Great Crested Grebe and Mute Swan also nested on Pout Hall, although the outcomes of these were not confirmed.

The nest recording group is now looking forward to the 2014 nesting season and hoping for better late winter and spring weather to get the breeding season off to a good start.



A Cuckoo flying over the Fen

Species Records

A record night for moth trapping at Wicken Fen

On 19th July 2013, Dave Grundy and colleagues, R. Hemming, C. Williams and M. Dale, recorded an amazing **274** species of moth around Compartment 19 of Wicken Sedge Fen (and over **2550** specimens were identified from their nine 125W MV moth traps and one 15W Actinic Skinner trap). Dave Grundy also stayed to trap on 20th July and added another 17 species not recorded on the 19th, so over the weekend, **291** different species of moth were recorded.

This was quite possibly the best moth night in terms of number of species recorded anywhere in Britain in 2013 (does anyone know better?). This total beat the 254 species of moth they recorded on their visit on 24th July 2012. Checking our Wicken data, this also beat the 261 moth species on 28th June 2009 recorded by Mark Skevington, Ron Follows and Adrian Russell (from 18 traps), and the same team identified 246 species (from 21 traps) on 2nd July 2005.

Our moth experts who visited in 2013 made it an outstanding moth year at Wicken Fen and they contributed a large number of valuable records (see below for some highlights). We estimate that over 10,000 individual moths were identified at Wicken Fen in 2013 and **19** species were added as new to the Wicken Fen list.

The Wicken Fen nature reserve moth list now totals 1216 species (plus 28 sub-species).



A classic location for a light trap at Wicken, by the historic windpump on the Sedge Fen.

Notable Moth Records

Green Arches *Anaplectoides prasina* (Noctuidae): A new species for Wicken Fen, one to MV light, on the Sedge Fen (at TL559704), 19/07/2013 by R. Hemming.

Tree-lichen Beauty *Cryphia algae* (Noctuidae): Roy Hilton and Keith Tailby took one of these scarce and very attractively marked migrants, new to the Wicken list, on 02/08/2013 on Wicken Sedge Fen (TL559706)(see Photo).

Toadflax Pug *Eupithecia linariata* (Geometridae): First record for 73 years and only the 3rd ever, taken at light by John Dawson on 12/07/2013 in Cmpt 19 of the Sedge Fen (TL561704).

Ear Moth *Amphipoea oculea* (Noctuidae): Surprisingly rarely recorded at Wicken, but noted twice in 2013 (last was 1996) on Wicken Sedge Fen (TL5570), 19/07/2013 by Dave Grundy and 02/08/2013 by Roy Hilton.

Dusky-lemon Sallow *Xanthia gilvago* (Noctuidae): Only the 3rd Wicken record for this elm-associated species, taken on the Sedge Fen, 02/08/2013, by Roy Hilton and Keith Tailby.

Pygmy Footman *Eilema caniola* (Arctiidae): One, probably a wanderer from the coast, at light on Adventurers' Fen TL5569 on 20/07/2013 by Kevin Button. New to Wicken.

Golden-rod Pug *Eupithecia virgaureata* (Geometridae): Three at light, Sedge Fen Cmpt 19 (TL561704) by Dave Grundy on 25/08/2013. Probably more wanderers, as only a few are recorded in southern England. New to Wicken.

Langmaid's Yellow Underwing *Noctua janthina* (Noctuidae): One of this rare migrant, to light on Sedge Fen Cmpt 19 (TL562704) on 16/08/2013 by Tim Pickering. New to Wicken.

Ypsolopha parenthesella (Yponomeutidae): A new micro-moth for the Wicken list, taken at light on the Sedge Fen, 02/08/2013, by Roy Hilton and Keith Tailby, and also 25/08/2013 by Dave Grundy.

Coleophora alcyonipennella (Coleophoridae): The Clover case-bearer. 1 male (genitalia dissection) taken at 125W MV on Wicken Sedge Fen (Cmpt 19)(TL562704), on 19/07/2013 by M. Dale. New to the Wicken list.



Moths: Tree-lichen beauty (left) and Narrow-winged Pug (right) by Roy Hilton, specimens from Wicken Fen in 2013.

Anarsia spartiella (Gelechiidae): A new micro-moth for the Wicken list, when specimens were taken at light on Cmpt 19 of the Sedge Fen (TL561704) by Dave Grundy on 19 and 20/07/2013. These moths may be dispersing from nearby Breckland where its foodplants are abundant.

Gelechia muscosella (Gelechiidae): Dave Grundy and M. Dale recorded 7 specimens of this very rare (RDB2 Vulnerable) fen specialist on 19 and 20/07/2013 in the north end of Wicken Sedge Fen Cmpt 19 (TL561704). Good to know this rarity survives on the site where Lord Walsingham found it first in 1869.

Syncopacma larseniella (Gelechiidae): 1 male (genitalia dissection) taken at 125W MV on Wicken Sedge Fen (Cmpt 19)(TL562704), on 19/07/2013 by M. Dale. New to the Wicken list.

Wax Moth *Galleria mellonella* (Pyralidae): First Wicken Fen record since before 1900, when two taken at light Wicken Adventurers' Fen (TL5569), on 20/07/2013 by Kevin Button.

Caloptilia semifascia (Pyralidae): New to the Wicken list, when recorded by Kevin Button on 20/07/2013 at Wicken Adventurers' Fen (TL5569), and also on 25/08/2013 by Dave Grundy at Wicken Little Breed Fen (TL559710), associated with Field Maple.

Phyllonorycter acerifoliella (Gracillariidae): Wicken Little Breed Fen (Cmpt 23)(TL559710) 25/08/2013 by Dave Grundy. Present in field maple. A new micro-moth for the Wicken list.

Phyllonorycter comparella (Gracillariidae): Wicken Little Breed Fen (Cmpt 23)(TL559710) 25/08/2013 by Dave Grundy. Present in white poplar. A new micro-moth for the Wicken list.



Phyllonorycter comparella (left) and Wax Moth (right)

Carnation Tortrix *Cacoecimorpha pronubana* (Tortricidae): New to the Wicken list, one taken at light on Wicken Sedge Fen (Cmpt 19)(TL562704), on 19/07/2013 by M. Dale. Perhaps, not a surprise as this species has been spreading steadily and is quite widespread, since it was first found in Britain in 1905.

Ptycholomoides aeriferanus (Tortricidae): One specimen to a 125W MV Wicken Sedge Fen (TL562704) on 19/07/2013 by M. Dale. New to the Wicken list. Another micro-moth that is spreading since its discovery in Britain in 1951.

Pine Shoot Moth *Rhyacionia buoliana* (Tortricidae): New to the Wicken list, one taken at light on Wicken Sedge Fen (Cmpt 19)(TL561704), on 20/07/2013 by Dave Grundy.

Rhyacionia pinicolana (Tortricidae): New to the Wicken list, taken at light, Wicken Adventurers' Fen (TL5569), on 20/07/2013 by Kevin Button.

Strophedra nitidana (Tortricidae): New to the Wicken list, taken at 125W MV light, Wicken Sedge Fen (TL562704) on 19/07/2013 by Dave Grundy.

Stathmopoda pedella (Oecophoridae): New to Wicken, for this micro-moth, taken at light by John Dawson on 12/07/2013 Wicken Sedge Fen (TL562704). Its larvae feed on alder seeds and there several of these trees close by on St Edmunds Fen.

Stigmella lemniscella (Nepticulidae): New to Wicken. Vacated mines in elm, in the elm suckers on the fen edge. Wicken Little Breed Fen: Cmpt 23 (TL559710). Dave Grundy on 25/08/2013.

Plus **three** new moth species for Wicken Fen from 2012 not previously noted in the Newsletter.

Pandemis cinnamomeana (Tortricidae): New to Wicken, at a MV light on the Sedge Fen, Gardiner's Drove (TL560705) on 08/07/2012 by R. Hemming

Nemapogon clematella (Tineidae): New to Wicken, when this pretty species was recorded at light from Wicken Sedge Fen (TL5570) on 28/07/2012, by Kevin Button.

Stenoptilia pterodactyla (Pterophoridae): New to Wicken, Wicken Sedge Fen (TL561704) on 22/07/2012 by M. Botham, and also found by Kevin Button on Adventurers' Fen (TL5569) on 20/08/2013.

Beetles (Coleoptera)

There has been a considerable amount of beetle survey work in 2012 and 2013 at Wicken Fen, adding over 1200 records to our database. The surveys have produced many fascinating results and deserve a much longer appraisal in a future newsletter and probably a formal publication. Of special mention is a visit by Nobby Thys, from Belgium, who braved ice, freezing wind and sleet, to come and sample various ponds and ditches at Wicken on 26th March 2013. Pete Kirby was busy in 2013 surveying for invertebrates in the reedbeds of Adventurers' Fen, an area not investigated much in the past. He will produce a detailed report in due course, but some early feedback from Pete revealed a very exciting range of species, including numerous red data book listed. Mark Telfer also visited and has some samples from flight interception vane traps to identify, a sampling method never tried at Wicken before.

In addition in 2013, Colin Welch continued a study of the beetle fauna associated with the Highland cattle and Konik pony dung. He had previously collected dung samples on one day in June 2010 which revealed a very rich fauna of over 120 beetle species, 10 of which were new to Wicken and 18 were last recorded over 75 years ago (see report in our 2010 Newsletter). The dung of the 100+ large herbivores at Wicken has no chemical additives or veterinary drugs and it is present all year round as the animals remain outdoors all of the time. Thus, it is quite possible that this is the most significant 'dung resource' for invertebrates in the whole of East Anglia!

Colin visited three times in 2013 and collected dung from Verrall's Fen, Baker's Fen and Burwell Fen, three quite widely spread sites, with different management histories and hydrology. Possibly the most remarkable discovery was of *Margarinotus obscurus* (Histeridae). Colin Welch found 4 specimens of this exceptionally rare species, designated as IUCN Endangered (RDB1), in a sample of Highland cattle dung collected on 08/07/2013 from beside a ditch on Wicken Burwell Fen: Cmpt 208 (TL563689). The related, nationally scarce species *Margarinotus marginatus*, was also found new to Wicken, on 03/09/2013 in konik dung collected from Baker's Fen Drove (TL563695).

The *Aphodius* genus are the classic 'dung beetles'. Due to the long history of recording beetles at Wicken Fen, we know that 8 species were known from the site by the 1920s, when there would have been numerous horses and cows in the village and its fields. Thanks to Colin's work, we now have 16 *Aphodius* species recorded at Wicken Fen and all of the previously known 8 have been re-found. Colin also added 15 beetle species new to Wicken in 2013 from the dung samples, for example, *Phacophallus pallidipennis* (Staphylinidae) (very scarce in GB) and *Ptiliola kunzei* (Ptiliidae) (RDBk). In addition, there were 16 species for which his 2013 record was the first for at least 65 years. This dung resource is clearly of high significance for its beetle fauna and would probably be of great interest, and value, for other taxon groups too.

Further notable beetle records

Aglenus brunneus (Salpingidae): This is a rather uncommon beetle, but we can now add it to the Wicken list, as we have discovered a published article about it being taken at Wicken Fen, in September 1943 by A.M. Masee. The article was "Aglenus brunneus in Cambridgeshire". Entomologist's Monthly Magazine, vol. 80, p9 (1943).

Diaperis boleti (Tenebrionidae): Two records of this rare (RDB2) saproxylic species to add to the one in 1999, both from bracket fungi on birch trees on the Sedge Fen (TL5570), 12/05/2013 by Nigel Gilligan and 08/07/2013 by Colin Welch.

Donacia thalassina (Chrysomelidae): This nationally scarce (Nb) reed beetle was added to the Wicken list when Peter Kirby swept it from reedy vegetation by the side of the Mere, Wicken Adventurers' Fen (TL558700) on 09/07/2012.

Dryops auriculatus and *Dryops anglicanus* (Dryopidae): Nobby Thys broke the ice to sweep net for water beetles in the 'Experimental Pond' on the Sedge Fen (TL55227079) on 26/03/2013, which even then had abundant Chara (stonewort). He found these two RDB Near Threatened species, both previously known from Wicken, but only the 3rd record for *auriculatus*. In this pond at this early date, he also found *Agabus*

uliginosus and *Laccornis oblongus* (both Dytiscidae and RDB Near Threatened), along with 25 other water beetle species. *Hydroporus gyllenhalii* (Dytiscidae) was amongst those species and although not scarce, it was the first record at Wicken for almost 100 years. Quite a catch and it shows you can start your field work for beetles early in the season and get a good range of species, through the ice!

Rhantus suturellus (Dytiscidae): Clive Washington netted this medium-sized diving beetle in the Brickpit Pond on the Sedge Fen (TL56187059) on 22/08/2013, surprisingly only our 3rd Wicken record and the first for 90 years.

Medon fuscus (Staphylinidae): A RDBk rove beetle new to Wicken and probably new to East Anglia. Discovered by T.D. Harrison in a reed and sedge litter pile (a 'Duffy pile') in fen carr woodland close to the old windpump, Wicken Sedge Fen (TL560702) on 05/05/2013. Mr Harrison also added two further rove beetles *Meotica exillima* and *Calodera aethiops* (Staphylinidae) to the Wicken list from litter piles in 2013.

Hypomedon debilicornis (Staphylinidae): A very rarely recorded species, although not with a formal rarity status. New to the Wicken list, when taken in a suction sample from a shallow-flooded meadow, in Wicken Baker's Fen: Cmpt 101 (TL561699) on 21/08/2012, by Peter Kirby. Also found by T.D. Harrison, from a reed litter pile (collected 08/11/2013, emerged 11/11/13) from the edge of Thomson's Drove on Wicken Sedge Fen (TL559704).

Limnichus pygmaeus (Limnichidae): First record for about 100 years of this small and nationally scarce beetle, when taken in a suction sample from a ditch edge on Wicken Adventurers' Fen (TL556694) on 21/08/2012 by Peter Kirby.

Corticaria serrata (Latriidae): A very local species, recorded by both Andrew Duff and T.D. Harrison in 2013 on Wicken Sedge Fen (TL5570) with the last Wicken records being before 1925.

Cartodere constricta (Latriidae): A very local species, which emerged from a litter pile collected from the Sedge Fen (TL5570) on 08/11/2013 by T.D. Harrison. The last Wicken records were over 120 years ago.



The exceptional rare Rusty Red Click Beetle, *Elater ferrugineus* (Elateridae), a RDB1 Endangered species, was discovered at Wicken Fen in 2013.

Different single males came to a pheromone lure on 3 occasions: 13/07 (at TL564703), and 26/07 and 30/07/2013 outside the Visitor Centre (TL563705). (photo by S. Warrington)

This species is a saproxylic specialist, associated with old trees and dead wood habitats.

Lichens at Wicken and the concrete post by the Windpump

Mark Powell

This concrete post (TL56207058) was first examined in detail by Jack Laundon in 1972 and has also been studied by the current author in 2008, 2012 and in 2013 (see table 1 below). This table shows that the community is dominated by a similar suite of lichens as it was in 1972; this is in marked contrast to the lichen communities of the trees and shrubs which have changed dramatically in the intervening years.

There is unlikely to have been much change in the lichen community present on the concrete post between 2008 and 2013; the apparent increase in species is mainly due to a more thorough study during the recent survey which included the collection of tiny specimens (scraped with a razor blade and stuck to card) for subsequent microscopic analysis.

One would think that the community of lichens growing on a small concrete structure would consist of ubiquitous species that were taxonomically unchallenging. But at least two species present are still uncertain and another has been vastly overlooked by British lichenologists. The yellow sorediate crust which is dominant on the lower part of the post (the side which receives donations) is one of the *Caloplaca citrina* group, the taxonomy of which is still being investigated for the British Isles. The species which resembles a large-fruited *Lecanora campestris* may be a candidate for *L. horiza*; the presence of the latter as being common on saxicolous (rocky) substrata has only very recently been recognised (Powell & Malíček 2013). On the right hand corner of the post (as viewed from the slot side), roughly at the level of the slot, is a small colony of a tiny species of *Verrucaria* which I can now confirm as being *V. ochrostoma*. Only very recently has it become realised that *V. ochrostoma* is common in Eastern England.

At the time of the 1972 survey *Caloplaca citrina* may have been the name applied to *C. flavocitrina* so the apparent change involving those taxa may not have occurred. *Caloplaca holocarpa*, as recorded in the 2008 survey, almost certainly applies to *C. oasis*. Both the *C. citrina* group and the *C. holocarpa* group have undergone recent revisions and field recording is still catching up with the new concepts.

The concrete post by the windmill is now acquiring an interesting history of study and it is to be hoped that this structure will be retained *in situ* indefinitely. The recording of this one small structure continues...

I visited Wicken Fen in 2013 during the 13th July Bioblitz and by lunchtime had added 60 lichen species to the Bioblitz running total and afterwards another 15 species could added following microscopic analysis and identification. My 2012 visits have added 38 lichen species to the Wicken Fen list and my 2013 visit lifted the total by another 5 species.

The 2013 additions to the Wicken Fen lichen list were:

Catillaria nigroclavata. Rare. A single specimen present on an Ash (*Fraxinus*) twig (Little Breed Fen, Butterfly Trail, Cmpt 23, TL560709) collected to confirm something else. This species may be overlooked; the apothecia are of similar appearance and size to the ubiquitous twig species *Amandinea punctata*.

Lecanora persimilis. Rare. On Ash (*Fraxinus*) twig (Butterfly Trail, Cmpt 23, TL560709).

Opegrapha atra. Rare. On Ash (*Fraxinus*) twig (Butterfly Trail, Cmpt 23, TL560709).

Opegrapha herbarum. Rare. On Ash (*Fraxinus*) tree, St Edmund's Fen. TL5670

Scoliciosporum chlorococcum. Rare. On Ash (*Fraxinus*) twig (Butterfly Trail, Cmpt 23, TL560709).

These two species were found new to Wicken in 2012 but identification was not confirmed until 2013.

Verrucaria ochrostoma. Rare. On concrete post beside the windpump and on the concrete manhole cover in car park.

Lecania rabenhorstii. Rare. Present on concrete post by the windpump and on vertical side of concrete manhole cover in car park.

Table 1. The Lichen Species recorded on the concrete post by the Wicken Fen Windpump (TL56207058)

1972 J. Laundon	2008 M. Powell	2012 M. Powell	2013 M. Powell
<i>Caloplaca citrina</i>			
<i>Caloplaca decipiens</i>			
			<i>Caloplaca cf. austrocitrina</i>
	<i>Caloplaca flavocitrina</i>	<i>Caloplaca flavocitrina</i>	
	<i>Caloplaca holocarpa</i>		
		<i>Caloplaca oasis</i>	<i>Caloplaca oasis</i>
<i>Caloplaca saxicola</i>			
<i>Candelariella aurella</i>	<i>Candelariella aurella</i>	<i>Candelariella aurella</i>	<i>Candelariella aurella</i>
		<i>Catillaria chalybeia</i>	<i>Catillaria chalybeia</i>
		<i>Lecania erysibe</i>	<i>Lecania erysibe</i>
		<i>Lecania rabenhorstii</i>	<i>Lecania rabenhorstii</i>
	<i>Lecanora albescens</i>	<i>Lecanora albescens</i>	<i>Lecanora albescens</i>
<i>Lecanora campestris</i>	<i>Lecanora campestris</i>	<i>Lecanora campestris</i>	
<i>Lecanora dispersa</i>	<i>Lecanora dispersa</i>		<i>Lecanora dispersa</i>
			<i>Lecanora cf. horiza</i>
<i>Lecanora muralis</i>	<i>Lecanora muralis</i>	<i>Lecanora muralis</i>	<i>Lecanora muralis</i>
<i>Lecidella stigmatea</i>	<i>Lecidella stigmatea</i>	<i>Lecidella stigmatea</i>	<i>Lecidella stigmatea</i>
		<i>Phaeophyscia nigricans</i>	
<i>Phaeophyscia orbicularis</i>	<i>Phaeophyscia orbicularis</i>	<i>Phaeophyscia orbicularis</i>	<i>Phaeophyscia orbicularis</i>
<i>Physcia caesia</i>	<i>Physcia caesia</i>		
<i>Rinodina oleae</i>	<i>Rinodina oleae</i>	<i>Rinodina oleae</i>	<i>Rinodina oleae</i>
		<i>Verrucaria muralis</i>	<i>Verrucaria muralis</i>
		<i>Verrucaria ochrostoma</i>	<i>Verrucaria ochrostoma</i>
	<i>Xanthoria calcicola</i>	<i>Xanthoria calcicola</i>	<i>Xanthoria calcicola</i>
<i>Xanthoria parietina</i>		<i>Xanthoria parietina</i>	<i>Xanthoria parietina</i>
		Sterile green sorediate crust	



Verrucaria ochrostoma (photo and record, Mark Powell)

Wicken Fen - a Fenland Botanical Hot-spot

Owen Mountford and Jonathan Graham

The *Fenland Flora* project

Fenland is among the most intensively farmed areas in Europe, extending from Lincoln to Cambridge and occupying *ca* 4000 km². Reclaimed from tidal marshes and floodplain fens, the 21st century landscape is one of large arable fields separated by ditches that feed into a highly engineered network of main drains and rivers. The counties making up Fenland have been studied botanically for 400 years but for the most part the Fenland portions of these counties have been relatively overlooked by botanists. To address this neglect, the Fenland Basin is now the subject of a major long-term survey (The *Fenland Flora* running from 2006-*ca* 2018) to map the distribution of the entire vascular flora. The project differs from the British tradition of floras for administrative counties in that the focus is a landscape defined by topography, hydrology and soils. The guiding principles for defining Fenland areas are that they be: a) at altitudes < 5m AOD, except on wholly included Fenland islands; and b) that they lie on loamy peat or groundwater gley soils (though including the brown soils and stagnogleys of the islands and Townlands, as well as the unripened gleys of the Wash salt-marshes).

The recording unit for the survey is the 4km² tetrad of the National Grid, and the approach combines new field surveys of all important habitats present within each tetrad with a compilation of records from published and database sources for the period since 2000. The project contributes information directly to all the projects from counties that overlap Fenland, and will benefit in turn from these county-based floras, the national *Biological Records Centre* and *National Biodiversity Network*.

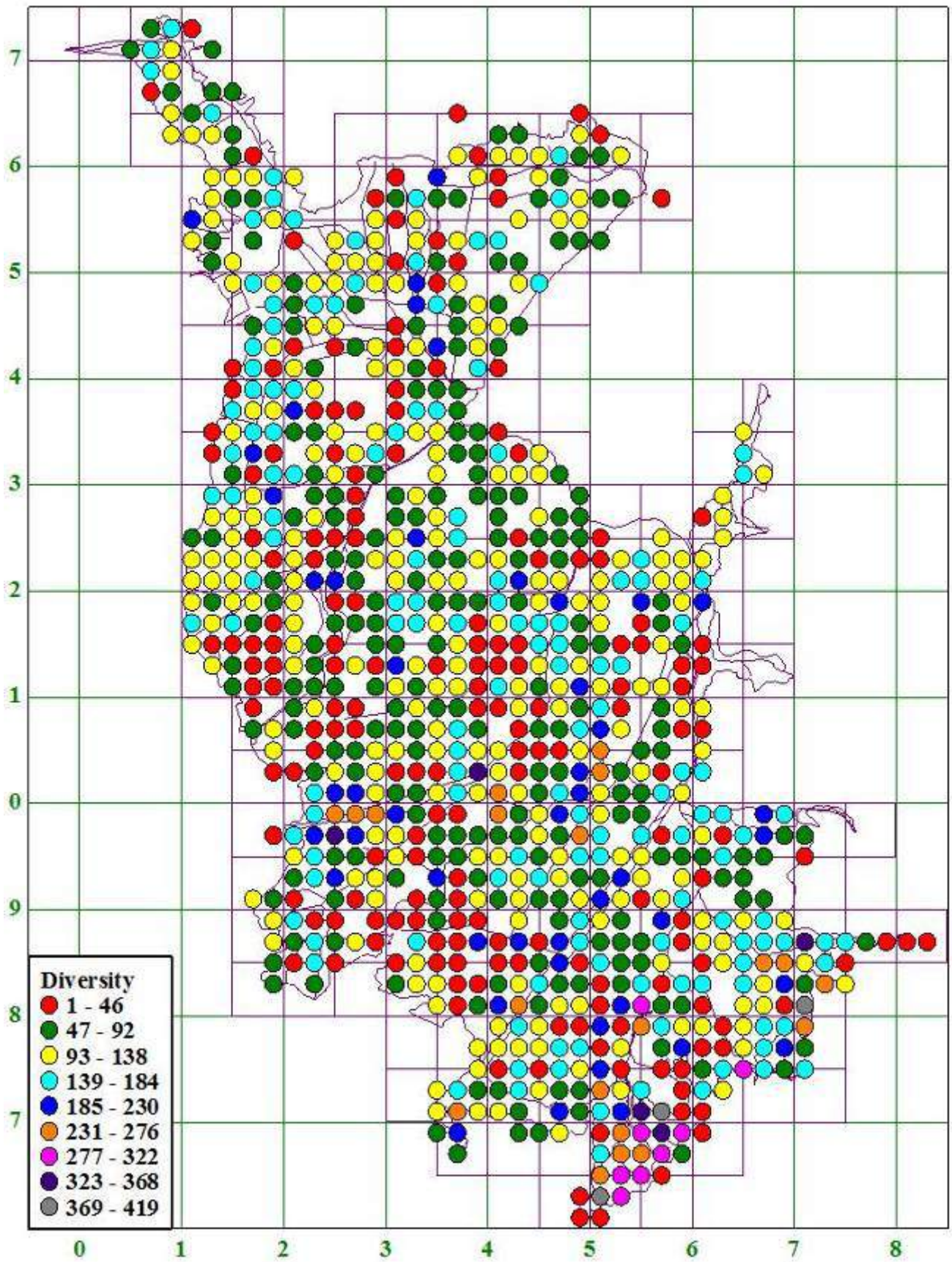
The *Fenland Flora* project began formally in 2006 and has assembled a new database from surveys of species growing in this region. The focus for new surveys has been mainly on areas previously under-recorded, but important datasets from sites of conservation importance (*e.g.* Wicken Fen, the Ouse Washes and Suffolk river valleys) have also been incorporated. Despite there still being significantly unrecorded areas in Fenland (see **map**), clear patterns are already emerging, especially for aquatic plants and those of older grassland. The surveys confirm the importance of some well-known sites as well as indicating new areas meriting attention and populations of regionally scarce plants.

Wicken Fen NNR – a resource for the whole Fenland

The *Fenland Flora* is contemporary with other initiatives, including possibly the most ambitious programme of ecological restoration in Northwest Europe *i.e.* the Great Fen Project, the Wicken Vision and the South Lincolnshire Fenlands, as well as RSPB projects at Lakenheath and associated with the Ouse Washes, the Wissey Wetlands and the remarkable private initiative at Kingfishers Bridge, near Wicken. These projects contribute to the *Fens for the Future* programme, which in turn has helped mobilise botanists to record the changing flora and to provide ecological monitoring of the progress of habitat creation.

Over much of Fenland, the main sites for native wetland plants and vegetation are drainage channels, older road verges and floodbanks, as well as locally flooded gravel and clay workings. On the “islands” were grasslands created for livestock and the draught animals that once worked surrounding arable land but increased human population, mechanisation of agriculture and the demise of mixed farming greatly diminished the extent of these old grasslands during the 20th and 21st centuries.

However, as the Wicken Vision has acknowledged, there is a special significance and key role for the few fragments of semi-natural Fenland that survive – these are the refuges that hold the bulk of the special Fenland species and they are a resource for restoring biodiversity and a green lung to the Fenland.



Plant species richness per tetrad (2x2 km) in the Fenland area, from the *Fenland Flora* project.

A look at the map of records for the Fenland conveys a clear message of the importance of Wicken Fen (look at the tetrads TL5470 and TL5670). Even allowing that the current map depicts survey effort by the **Fenland Flora** project as much as actual species-richness, the remarkable assemblage of species in the old fen within the Wicken Fen NNR is outstanding, with up to four times the number of species found in typical farmed Fenland. Many of these species are now absent or very rare within the rest of the Fenland landscape. This makes the conservation of the old fen a huge priority and stresses its potential as the nucleus or central resource for a future richer flora of the Fenland.

The **Fenland Flora** project has discovered wonderful plants in unconsidered and remote parts of the basin, but the primacy of Wicken Fen and the other great NNRs emerges from this study emphasised rather than diminished.

***Dactylorhiza* orchid species found at Wicken Fen in 2013**

Pete Carey

Orchids of the genus *Dactylorhiza* have been described at Wicken Fen on several occasions, but there has been some confusion about the identity of the species present, which is hardly surprising as the species have changed names on many occasions. A survey for these orchids was carried out in June and July 2013, around the perimeter of the Sedge Fen at Wicken and flowering specimens were identified wherever they were encountered. Over 330 flowering spikes were found with high concentrations noted by the path alongside Wicken Lode and by Verrall's Drove.

The species and hybrids (following Stace, 1991) found in 2013 in order of abundance were:

Dactylorhiza incarnata subsp. *incarnata* (Early Marsh Orchid)

D. incarnata x *D. praetermissa*

D. fuchsii x *D. praetermissa* (*D. X grandis*)

D. incarnata subsp. *pulcella*

D. fuchsii (Common Spotted Orchid)

D. praetermissa (Southern Marsh Orchid)

It became obvious why it has proved difficult to identify the *Dactylorhiza* orchids at Wicken Fen in the past. Many of the plants have intermediate characters and do not key out precisely. Many plants appeared to be hybrids between *D. incarnata* subsp. *incarnata* and other *Dactylorhizas*. It still seems most likely to me that many of the hybrids are with *D. praetermissa*, but that can only be resolved by genetic analysis.

The Heath Spotted-orchid *Dactylorhiza maculata* subsp. *ericetorum* last recorded at Wicken in 1986 was not found. However, the locality at the 'west end of Sedge Fen Drove' may need to be searched more thoroughly to be certain that this Orchid is not present. Another orchid hot-spot along Gardiner's Drove was not surveyed in 2013 and will have to wait until June 2014. Of the other orchid species, six plants of Twayblade *Listera ovata* were found by the path in Cmpt 12 of the Sedge Fen. Bee orchid *Ophrys apifera* were known in the meadows of Little Breed Fen (especially Cmpt 22) but there have no reported records for 10 years. Green-winged Orchid *Orchis morio* was last recorded 55 years ago in one small patch on Sedge Fen Drove.



Dactylorhiza incarnata* subsp. *incarnata
Early Marsh Orchid at Wicken Sedge Fen
(photo and record by Pete Carey)



A group of *Dactylorhiza x grandis* flowers at Wicken Sedge Fen (P. Carey)



***Dactylorhiza incarnata* subsp. *pulchella* at Wicken Sedge Fen (P. Carey).**

Other notable plant species records

We have received a number of interesting records of plants for Wicken Fen, from detailed surveys, from spot observations and from historical Herbarium specimens (searched for online). The new species, sub-species and hybrids for the Wicken List were:

Pyramidal Orchid *Anacamptis pyramidalis* On 09/07/2013, Ruby Wood, one of Wicken's Rangers, spotted 10 flowers of this orchid, in a cluster about 2m square on White's Fen, near the pylons (TL536650). White's Fen is a narrow strip field, with grassland developing and many planted trees and shrubs, which is a key part of the Lodes Way cycle path and is nearer to Anglesey Abbey than to Wicken Sedge Fen.

Holly *Ilex aquifolium* The first formal record of this species! A 1.5 metre sapling was growing under an oak tree by the side of a path to mist nests regularly used by ringers. The oak had two bird boxes on. Wicken St Edmund's Fen: Cmpt 32 (TL565702), 13/07/2013 by S. Warrington. Holly clearly has struggled to get established on the wet fen peat of Wicken, but we expect more records of this species on the wider nature reserve, both planted and getting established from seeds spread by birds.

Flea Sedge *Carex pulicaris* R.H. Yapp 1907 Birmingham University Herbarium. Note on sheet, readable from the photograph. "On Sedge Fen at Upware end, Aug 1907". This species has not been recorded at Wicken since that date, although the Upware end of the old fen is very hard (some would say the swamp habitat there is hazardous) to access.

Annual Mercury *Mercurialis annua* Wicken Hurdle Hall: Cmpt 221 (TL562669) Jonathan Graham on 27/07/2012. A massive population found of 1000+ flowering plants on recently disturbed soil, associated with creation of new scrapes and ponds by National Trust.



Common Restharrow (left) and Annual Mercury (right), both new plant species for Wicken Fen.

Common Restharrow *Ononis repens* Wicken Adventurers' Fen: Cmpt 60 (TL555693). Found on an old raised bank, just east of the Borrow Pit (which is within the SSSI) on 27/07/2012 by Jonathan Graham.

Goat's-beard sub-species *Tragopogon pratensis* subsp. *minor* Wicken Adventurers' Fen: Harrison's Drove (TL555696) on 27/07/2012 by Jonathan Graham, on the rough grass verges of drove.

White Champion sub-species *Silene latifolia* subsp. *alba* Three location in July 2012 by Jonathan Graham, two by the cycle track on Burwell Fen (TL564684, TL559682) and by the fishing pond on Hurdle Hall (TL562669).

Willow Hybrid *Salix caprea* x *cinerea* = *S. x reichardtii* P.D. Sell 12/06/1986 Cambridge University Herbarium. "At Wicken Fen."

Willow Hybrid *Salix cinerea* x *myrsinifolia* Wicken Sedge Fen: Cmpt 18 (TL55937022). Alan Leslie recorded one large shrub of this hybrid (on 23/07/2011) on north side of strip of carr running along south edge of Sedge Fen, adjacent to both parents. Rare in southern UK.

Fungi and a Slime Mould

We are aware of very little recording of these taxon groups in recent years, but a visit by Helene Davies gave us two new fungi species for our lists and only our 2nd ever slime mould species.

Agrocybe cylindracea (Agromycete Fungus): Wicken Little Breed Fen Drove (TL560708). Helene Davies 13/07/2013. Clump of agarics growing inside hollow trunk of Willow at ground level.

Coprinellus domesticus (Agromycete Fungus): Wicken Fen: Education Area: Cmpt 30 (TL564703) Helene Davies 13/07/2013. Anamorphic stage resembling a matted orange mossy layer on cut logs.

Slime mould *Fuligo septica*. Inside the old willow by the entrance ditch to the Visitor Centre (TL56337051) by Helene Davies on 13/07/2013.

Evaluating Greenhouse Gas Fluxes and Carbon Balances of Wicken Fen

Mike Peacock, Open University. michael.peacock@open.ac.uk

Peatlands contain the largest terrestrial store of carbon in the UK. However, many bogs and fens have been degraded or altered through management, such as drainage and agriculture. A recently-initiated DEFRA-funded project (SP1210) is attempting to determine the effects that land management has on such peatlands, with a focus on lowland peats. This project involves numerous UK universities and field sites through England and Wales, and Wicken Fen is one of the selected sites. The research at Wicken is being conducted by Dr Mike Peacock and Dr Vincent Gauci at The Open University, and Dr Joerg Kaduk at Leicester University.

The work at Wicken is divided across two sites. Sedge Fen is relatively intact and will act as a reference site for the entire project, i.e. a fen that has not been drained and is well-preserved. Baker's Fen is being converted from former arable agricultural land and will be used to examine the effects of post-agricultural wetland restoration. One of the aims of the research is to measure fluxes of greenhouse gases; carbon dioxide, methane and nitrous oxide, and to evaluate how these differ between the two sites, and between different types of vegetation. For instance, it is often found that rushes *Juncus* and common reed *Phragmites* can act as 'chimneys' and transport methane from the soil directly into the atmosphere. A second aim is to measure the water chemistry of the ditches in the sites. Dissolved organic carbon (DOC) is an important component in waters that drain peatlands. It is a natural product of decomposition, and can influence aquatic ecosystems and water quality. Additionally, it is often found that ditches are important emitters of greenhouse gases, particularly methane. This is because the microorganisms that produce methane depend on anaerobic conditions. As such, the project aims to measure fluxes of methane and carbon dioxide that are released from the drainage ditches themselves.

The fieldwork for the project began in April 2013. Throughout summer sampling takes place on a fortnightly basis, and this is reduced to monthly sampling in winter. The current data shows that DOC concentrations are relatively stable on Sedge Fen, but concentrations were elevated on Baker's Fen throughout summer (Fig.1). It is possible that this is due to the very dry conditions that dominated on Baker's Fen through the summer, as drought-induced decomposition stimulates the production of DOC. In support of this, we found that depth to the water table increased and dipwells on the fen were frequently found to have completely dried up. Additionally, dry conditions will lead to increased evaporation, causing the ditches to stagnate, and resulting in high DOC concentrations.



Measuring real-time fluxes of methane and carbon dioxide on Sedge Fen, using a state-of-the-art Los Gatos Ultratable Greenhouse Gas Analyser.

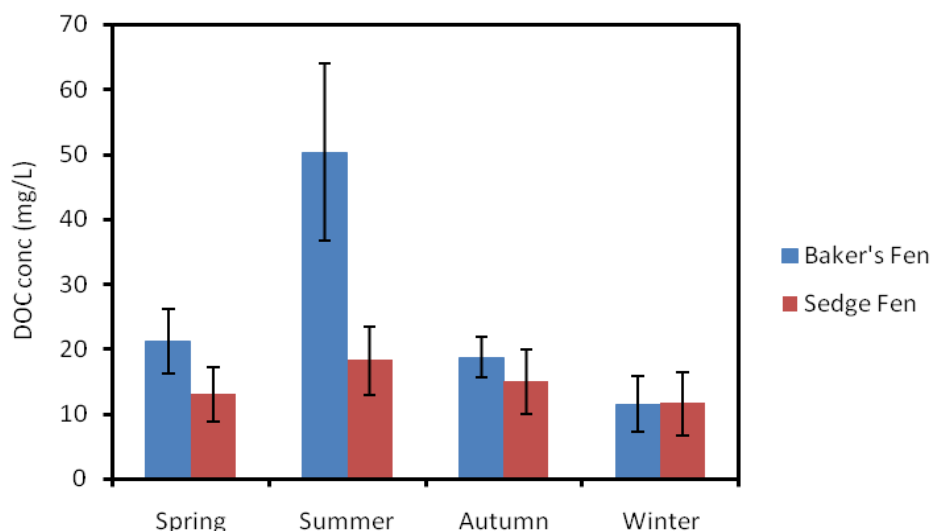


Figure 1. Mean seasonal concentrations of dissolved organic carbon (DOC) in ditches on Baker's Fen and Sedge Fen for 2013.

Measurements of greenhouse gases (see photo of equipment) have so far produced some interesting results. When measurements started in early spring, *Juncus* rushes on Baker's Fen were observed to be releasing methane. However, it is likely that the dry summer created conditions that were unfavourable for methane-producing microorganisms and very little methane was observed being emitted at both Baker's Fen and Sedge Fen. Indeed, uptake of methane was sometimes observed at both sites.

The measurements of methane and carbon dioxide from the ditches so far suggest that large amounts of both gases are emitted from the water surface. An intensive survey of ditches on one day in November showed that more methane was emitted from ditches on Sedge Fen, but that the size of the fluxes was extremely variable (Fig.2). In contrast, fluxes from ditches on Baker's Fen were much smaller. As with the DOC concentrations, this may be due to the dry conditions that persist throughout summer on Baker's Fen. An additional factor may be that the depth of peat on Baker's Fen is very small; just a few centimetres in places. There is therefore only a small habitat available for the microorganisms that produce methane. Fluxes of carbon dioxide from ditches were also higher on Sedge Fen, but large amounts were also released from ditches on Baker's Fen. Further intensive ditch surveys should show how ditch fluxes change through the seasons.

The experimental work is set to continue throughout 2014 and into 2015, and this will enable seasonal cycles in water chemistry and greenhouse gases to be investigated.

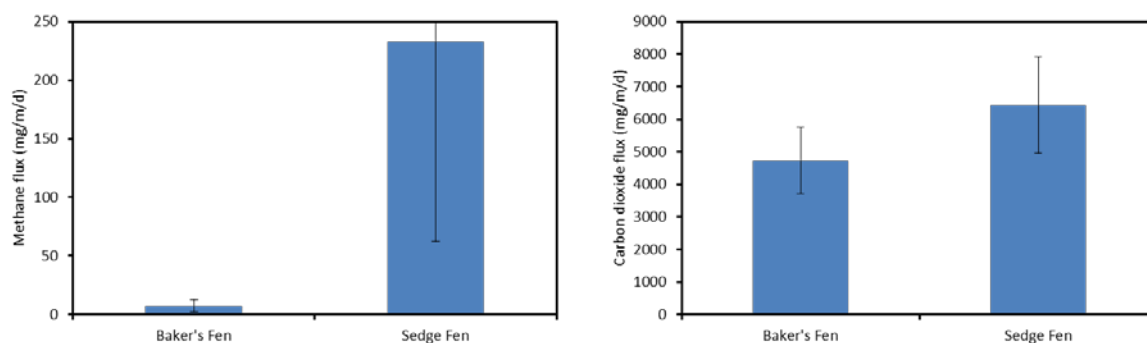


Figure 2. Mean fluxes of methane (left) and carbon dioxide (right) from ditches on Baker's Fen (n = 11) and Sedge Fen (n = 13) from a one-day survey in November 2013.

The Wicken Fen Research and Recording Group

At Wicken, this group helps to organise and co-ordinate the various scientific, recording and natural history activities on the property. Everyone who is interested in research and recording at Wicken is welcome to attend the Group's three meetings each year, one of which will be a summer field excursion. Please do contact Peter Bircham, the Chair.

Contact Addresses

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We hope that this **Newsletter** will find its way to everyone who has an interest in Wicken Fen. Please do tell Stuart Warrington, if you know of people who you think would like to receive it (postal or email address). Also if you don't want to receive this Newsletter, just tell Stuart.

Carrying out a Research Project at Wicken Fen

If you wish to carry out research at Wicken Fen, you will need to have the support of the Wicken Research and Recording Group and you must get a permit.

For research proposals, please use the form provided in the research section of the Wicken Fen web at <http://www.wicken.org.uk/research.htm> Then email it to: wfresearch@nationaltrust.org.uk

The R&R Group will consider the research proposal and get back to you as soon as we can. We like to have the site used for research (there have been 20 students projects (BSc, MSc, PhD) at Wicken in the last 4 years). However, we do need to co-ordinate and manage the research work. We also have ideas for useful projects and can guide you to good sites on the property, provide maps etc. We have risk assessments available if you wish to work on areas where we have grazing animals.

Recording species at Wicken Fen

Please do come to Wicken Fen to observe and record its flora and fauna. Don't assume that because the site has such a long history of recording that nothing new or unusual can be found. This Newsletter has highlighted a number of species found new to the property or the first record for many decades. Also, the Reserve is getting larger and it is very interesting to find out what species occur on the restoration land, so do look at the new land as well as the classic old fen.

We can send you a Map of the site too, to help you get around and find the new areas of habitat.

Please get a Permit

You will need a permit to use a trap, net or collect specimens, but these are readily obtained, with the understanding that you will send us your records. To get a Recording Permit, email (or write) with your address and what you want to do study (eg 'Moth trapping', 'collect Coleoptera and Hemiptera using a sweep net'), to either:

Karen Staines, Business Support, Wicken Fen. Address and telephone number on p1.

Email Karen.staines@nationaltrust.org.uk or Email stuart.warrington@nationaltrust.org.uk

Sending in your Species Records

The key information we need is:

Species Name, Location, OS Grid Ref., Date, Recorder.

It is also useful to add Comments (exactly where found, the habitat, notes on the behaviour etc.), Determiner (if different to the recorder), and Numerical Abundance (how many). The ideal format for us is an Excel Spreadsheet, with each individual record on a separate line, with separate columns for Species Name, Location, Grid Ref., Date, etc. This can then be emailed to wickenfen@nationaltrust.org.uk or to stuart.warrington@nationaltrust.org.uk

If you don't have access to email and computers, then a typed or hand-written list is quite acceptable.

With Moth records, it is very useful if the Bradley Checklist Code number can be included.

Small Copper	Compartment 22	TL562706	15/07/2005	John Smith	Basking on path	4
Gatekeeper	Sedge Fen Drove	TL556706	15/07/2005	John Smith	15 over 100 metres	15
Speckled Wood	St Edmunds Fen	TL564702	15/07/2005	J.B. Jones	A few noted	
Peacock	Burwell Fen: Cmpt 208	TL563689	15/07/2005	J.B. Jones	5 around thistles	5

1634	Lackey	Sedge Fen Drove	TL556706	10/06/2006	C.C. Brown	5
1640	Drinker	Sedge Fen Drove	TL556706	10/06/2006	C.C. Brown	1
1713	Riband Wave	Sedge Fen Drove	TL556706	10/06/2006	C.C. Brown	1
926	Phalonia maniana	St Edmunds Fen	TL564702	11/06/2006	C.C. Brown	1

Wicken Fen data on the NBN

By Easter 2014, we shall have an updated dataset of our Wicken Fen species records loaded onto the NBN Gateway. We have increased the dataset to nearly 89,000 records (up from 73,500 in March 2012), of over 8,750 taxa (species and subspecies).

For several of the more 'obscure' species, Wicken Fen provides the only record on the NBN.

For example, the flatworm *Mesostoma platycephalum*, or the Nematode worm *Thornenema wickeni* (discovered new to Science at Wicken in 1970).

The NBN Gateway can be found at: <https://data.nbn.org.uk/>

Wicken Fen and Dragonflies.

Ruary Mackenzie Dodds talks on BBC Radio 4 Nature about Dragonflies. He was recorded at Wicken Fen. Ruary has been a great supporter of our work at Wicken. Listen again here:

<http://www.bbc.co.uk/programmes/b03w0gwb>

We are looking for new volunteers to walk dragonfly transects and record what you see, at Wicken Fen, for 2014 onwards. If you are interested in helping out please do contact us.

A Ruddy Darter at Wicken (photo by Carol Laidlaw)





April 2013 aerial view of Wicken Fen nature reserve towards the south-east, with the junction of Wicken Lode and Monks Lode in the foreground, the shallow floods over Baker's Fen in the centre and the newly created wetland of Burwell Fen in the distance (top right).

