



# National Trust

## *Wicken Fen*

### *Recording and Research Newsletter*

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**This Newsletter is produced by the Wicken Fen Research and Recording Group**  
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**Deadline for contributions to the next issue is 30<sup>th</sup> September 2011**  
Please send all contributions to the address above or by e-mail to: [beckyallen@ntlworld.com](mailto:beckyallen@ntlworld.com)

*Welcome to the third issue of the Wicken Fen Recording and Research Newsletter.*

The aim of this Newsletter is keep you informed of what's going on at Wicken. We hope you find the contents interesting and that you might be encouraged to get involved.

Wicken Fen National Nature Reserve is owned by the National Trust and is managed by a professional team guided by a Local Committee. The 'Research and Recording Group' at Wicken helps to organise and co-ordinate various scientific 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. Contact anyone listed below.

The Chair of the Research and Recording Group is Peter Bircham. The Botanical Secretary is Pete Stroh and the Zoological Secretary is Peter Brown (recognise a pattern here?). The Newsletter is edited by Becky Allen and Stuart Warrington, the Nature Conservation Advisor for the National Trust in the East of England Region.

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We hope that this Newsletter will find its way to everyone with an interest in Wicken Fen. If you have friends or colleagues who you think would like a copy, or if you no longer want to receive the Newsletter, please tell the editor Becky Allen ([beckyallen@ntlworld.com](mailto:beckyallen@ntlworld.com)).

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## The Wicken Fen Vision, 10 years on

The aim of the National Trust's Wicken Fen Vision is to encourage the development, by the year 2100, of a landscape-scale nature reserve for the benefit of people and wildlife across 5,300 hectares of land between Wicken Fen and Cambridge. The ecological reasons for working on a larger scale are well understood, with support from topics such as island biogeography, species-area relationships, minimum viable populations, metapopulations and reducing habitat fragmentation. This landscape-scale project may also contribute towards improving ecosystem services, climate change resilience for wildlife populations and protection of vulnerable peat soils. There is also the interesting idea that this project, and other of a similar basis, may provide the best chance for the conservation of 'landscape species' within fenland.

This exciting restoration project has been underway since 1999, since when the Trust has more than doubled the land owned for conservation to 758 hectares (1873 acres). The latest Vision Strategy document and an interesting article by Tony Juniper can be seen at: [http://www.wicken.org.uk/vision\\_strategy.htm](http://www.wicken.org.uk/vision_strategy.htm)

Grazing animals are a very important part of the in management of the Vision land. On Adventurers' Fen, the Trust has free-ranging, breeding herds of Highland cattle and Konik ponies. Their grazing adds a vital element of dynamism to that created by the variations in water levels. These herds are thriving, with the cattle numbers increasing to 44 in September 2010 from nine in 2005, and the Koniks now number 43, with foals being born every year since 2004. There are also 12 Koniks on Verrall's Fen, and two Highlands on Little Breed Fen, so overall the Wicken Fen team now look after over 100 of these free-ranging grazing animals.

## Land use in the Wicken Vision area

Joni Cook, who works at the University of Leicester, carried out a land use survey of the land in the Wicken Vision area in summer 2008. This was a part of her project for her MSc in Countryside Management at Manchester Metropolitan University. The full title of her project was 'Multi-criteria ranking

of land restoration potential to fenland plant communities'.

*Summary of land use (km<sup>2</sup>):*

Arable crops	35.6
(includes wheat 20.0, oil-seed rape 4.1, barley 3.4, sugar beet 3.1, carrot, flax, potato, fallow)	
Grazing	2.9 (grazed 1.5, hay or silage 1.4)
Turf production	2.1
Horticulture	0.9
Wood & scrub	2.1
Buildings / yards	0.4
Derelict / pits / abandoned	1.6
National Trust	7.7

## Monitoring the Wicken Fen Vision

The current monitoring project was set up in 2007 with funding from the Esmée Fairbairn Foundation (EFF). The funding was due to last until April 2010 but a second grant from the EFF has extended the monitoring until the end of 2012. This wonderful news will allow several monitoring methods to be tested more completely than would otherwise have been possible. The monitoring project is based at Anglia Ruskin University (ARU) in Cambridge and is run by Pete Stroh and Francine Hughes

The monitoring project also works at the Great Fen, which has allowed useful cross-fertilisation of ideas between the two restoration projects on how best to set up monitoring for such large-scale restoration areas. A steering group for the monitoring project includes National Trust, Wildlife Trust, Environment Agency and Natural England personnel as well as the team from ARU.

At Wicken Fen, the monitoring project has successfully set up a monitoring system across the Vision land, with the emphasis on survey methods that are scientifically robust and simple enough to replicate in future years. This will ensure that results provide the National Trust with useful data to inform land management decisions.

The emphasis of this monitoring project has been on understanding how the developing vegetation communities relate to both hydrological processes and grazing patterns across the area and Pete Stroh has been working full-time on this part of the work. Additional species groups, such as water beetles, have been monitored using both professional and volunteer inputs where possible and Pete Stroh has undertaken some of the volunteer training required.

The monitoring protocols have been divided into those that really need professional input and those that can be carried out by trained volunteers across the restoration land and the National Nature Reserve (NNR):

### *Vegetation and hydrological monitoring by professional personnel*

This involves the use of fixed vegetation quadrats, located throughout the NNR and the Vision land. These have been recorded on an annual basis from 2007 to 2009 (some since 2006), and will next be recorded in 2012, and then every five years. Collecting data in the same places over the years will enable the National Trust to analyse fine-scale changes. Many of these quadrats are located adjacent to transects set up to monitor hydrological processes. The hydrological equipment was installed in 2007, providing detailed information on changes in the water table and % soil moisture throughout the year.

The Environment Agency has funded all the work associated with installation and downloading of water table data from the blue dipwells. The project had true colour and False Colour Infra Red (FCIR) aerial photographs flown in 2007 in order to map vegetation at a broader landscape-scale. Flights will be

repeated in 2012 to test the mapping methods and to examine the vegetation changes in the intervening years. Some additional random vegetation quadrats have been surveyed in order to help with the vegetation mapping work. The large fenced enclosures that can be seen around the Vision land are also part of the vegetation monitoring work. Some of the fixed quadrats are inside these to allow a better understanding of the impact of the grazing animals.

#### *Monitoring of species groups by professionals and volunteers*

Species groups monitored have been separated into three broad categories:

1. Landscape species – these are species that thrive on landscape-scale restoration projects because of their spatial requirements. These may include raptors, migrant birds, roaming herds of deer or specialist bat species.

Breeding and wintering bird surveys have been led by Peter Bircham since 2009, and protocols for the monitoring of deer and bats have been designed by volunteers with specialist knowledge of these species and will be starting in the late spring 2010.

2. Indicator species – these tell us about the quality of the environment. As these species have particular habitat requirements.

Volunteers have been collecting data on aquatic plants since 2008 on Bakers Fen and Sedge Fen. An undergraduate student from ARU will be continuing the survey in 2010, with the intention of comparing the species assemblages at both sites, and looking at the potential to use aquatic plants as a surrogate measure for the water quality of ditches. Surveys of small mammals are planned for this year at Harrisons and, depending on preliminary results, Burwell Fen. This data will help us to start building a picture of which species are where, in what abundance, and also assist in assessing the potential food source for raptor and owl species. Vegetation surveys within the Vision by volunteers have been in operation for some years now thanks to Jennie Blood-Smyth, and the coverage of the survey area is to be extended in 2010 due to popular demand!

3. Species typical of the adjacent NNR – these species tell us if rare or specialised species are finding conditions suitable on the new restoration land.

Wicken Fen is famous for its diversity of invertebrate species, and the need for more space for species to expand their territories was one of the primary reasons for the initiation of the Wicken Fen Vision. As such, it was imperative that a baseline of species found in the restoration land was recorded so that future finds could be assessed against this baseline, and confidence could be attached to the possibility of migration from the NNR. With this in mind, Dr Peter Kirby has worked with the monitoring project team and designed invertebrate survey protocols to collect information across quite large areas of the NNR and the restoration land and within a range of wetland habitats. He carried out the first survey in 2009 and will repeat the survey annually until 2012. This should allow some assessment of both changes in invertebrate use through time and an indication of whether some species previously confined to the NNR are finding suitable habitats on the Vision land. Blaise Martay, a PhD student at ARU, has been studying in fine detail the ground beetle assemblages found both in the NNR and the Vision land in the same areas as the hydrological transects.

Future monitoring is a major challenge, especially once funding is no longer available after 2012. The National Trust will eventually need to take over responsibility for the monitoring work and to this end the team at ARU have designed the monitoring so that some parts of it need only be undertaken every five years. This allows the property to set aside modest funds annually for the work that has to be carried out every five years, such as vegetation mapping from aerial photos, collection and analysis of vegetation data from fixed quadrats, invertebrate monitoring and hydrological data analysis.

It is hoped that the monitoring of birds, mammals and broader-scale vegetation patterns will carry on annually through the excellent work of the numerous volunteers. Without the dedication and skill of volunteers, the monitoring work would be much less effective and ultimately useful for making decisions on restoration management.

To find out more about the monitoring project please contact Pete Stroh, email: [Peter.stroh@anglia.ac.uk](mailto:Peter.stroh@anglia.ac.uk) or Francine Hughes, email: [Francine.hughes@anglia.ac.uk](mailto:Francine.hughes@anglia.ac.uk)

If you would like to join the volunteer teams, then DO PLEASE contact Pete.

## How many species at Wicken Fen?

Research into the literature about Wicken Fen, especially the entomology journals pre-1920 (now on-line), plus new observations in 2008-10 have added several extra species to our Wicken list. The running total has now been revised upwards again, to 8,419 species!

The dominant group is, of course, the Insects with 5900 species, of which the Diptera (flies) are top of the list with 1901 species, followed by the Coleoptera (beetles) with 1548 species. Two articles about the Nematode worms found at Wicken Fen were very interesting with 20 species noted, two of which were new to science. [Yeates, G.W. (1971) Plant and soil nematodes of Wicken Fen. *Nature in Cambridgeshire*, **14**: 23-25, Yeates, G.W. (1970) Four *Dorylaimina* (Nematoda) from Wicken Fen, Cambridgeshire. *Nematologica*, **16**: 273-283.]

**A total of five species new to science have been discovered at Wicken Fen over the years and a further 20 species have been found new to Britain at Wicken Fen.**

## Wicken species data on the NBN

In July 2010, we placed more than 66,000 records of more than 8,400 species on the NBN Gateway so that they can be viewed, inspected and downloaded by anyone with internet access. The NBN is a great facility and it has been growing fast over the past three years and now includes more than five million wildlife records. The NBN gateway can be found at [www.searchnbn.net](http://www.searchnbn.net) You can find the Wicken dataset by working through the Browse by Sites link on the NBN gateway or by following the link from the Wicken Fen home page – [www.wicken.org.uk](http://www.wicken.org.uk)

## More than 4,400 birds ringed at Wicken in 2009

The Wicken Fen (Bird Ringing) Group has been in continuous operation for 42 years. Since it was established in 1968, almost in total 90,000 birds have been ringed at Wicken Fen; 470 of these have subsequently been reported away from the Fen, 66 of them abroad.

The Group has more than 40 members and 19 registered 'friends'. This healthy membership meant that coverage at the Fen during 2009 was greater than in 2008 (although not as high as in 2007). Ringing operations were conducted on 182 days, involving 4,502 person-hours!

Ringing sessions were held in every month of 2009. The majority of sessions (108) were carried out on St. Edmund's Fen (compartments 30-35), with 69 sessions at the Reedbed (compartments 51-53), 38 at North Field/Gallops/Milner-Whites (compartments 15, 19, 20-23), and eight sessions in the Baker's Fen/Priory Farm/Burwell Fen areas (compartments 101-104, 200-220).

The 2009 ringing total was 4,420 birds of 60 different species, plus 775 birds ringed in previous years. Several species topped the 100 mark, the highest scores being Reed Warbler (555 ringed), Blackcap (308), Great Tit

(291), Blue Tit (288), Chaffinch (239), Goldfinch (232), Reed Bunting (231), Blackbird (196), Robin (182), Wren (180), Chiffchaff (176), Greenfinch (130), Sedge Warbler and Dunnock (both 129) and House Sparrow (119).

Several records were broken for annual totals: Great Tit, Goldfinch, Robin, Chiffchaff, House Sparrow, Whitethroat (84), Pied Wagtail (79), Cetti's Warbler (54) and Garden Warbler (43).

As usual, nut and seed bait was available at our ringing sites in the winter, and this helped to boost the numbers of finches, buntings and tits caught.

Several less usual species were ringed during 2009: Meadow Pipit (23), Tree Sparrow (20), Tree Creeper (19), Bearded Tit (15), Great spotted Woodpecker (11), Grasshopper Warbler (10), Jay (9), Yellowhammer (9), Barn Owl (8), Sparrowhawk (6), Jackdaw (5), Lesser Redpoll (5), Green Woodpecker (4), Kingfisher (4), Cuckoo (3), Heron (2), Water Rail (2), Stock Dove (2), Brambling (2), Moorhen (1), Hobby (1), Woodcock (1), Tawny Owl (1), Little Owl (1), House Martin (1), Stonechat (1), Magpie (1), Siskin (1) and Linnet (1).

No new birds were added to the Group's ringing total, which remains at 101 species.

The Group's nest-boxes were reasonably successful in 2009: 41 of the year's Blue Tits and 74 of the year's Great Tits were ringed as nestlings in the boxes. A further 133 nestling birds of 14 species were also ringed in the year.

The Group received notification of 21 Wicken-ringed birds being recovered away from the Fen during 2009. Pride of place goes to Blackcap N590854 ringed at the Fen in November 2006 but now wintering at Brabant in Belgium, and Tree Sparrow X077490 caught in February 2009 at Wicken, but now apparently settled and probably breeding in Humberside.

Other emigrants were a Lesser Redpoll to Nottinghamshire, a Reed Warbler to Hampshire, three Reed Warblers and a Sand Martin to Sussex, a Robin to Norfolk, Greenfinches to Suffolk and Hertfordshire and 10 other birds to various parts of Cambridgeshire. And during the year, Wicken Fen welcomed 12 birds that had been ringed elsewhere – a Sedge Warbler from France, a Reed Warbler and a Blackcap from Belgium, a Blackbird from Holland, a Sedge Warbler from Sussex, a Reed Warbler from Norfolk, a Blue Tit from Bedfordshire, 4 other birds from elsewhere in Cambridgeshire and a Blackcap of unknown origin (we are still awaiting details).

Some elderly birds were retrapped at Wicken during 2009 – a Chaffinch at 6 years 7 months broke the longevity record for that species at the Fen. Other record breaking birds were a House Sparrow at 5y 5m, a Woodpigeon at 4y 5m and a Cetti's Warbler (the same one that set the record in 2008) at 4y 2m. The longest lived of other species were a Jay at 6y 8m, a Long-tailed Tit at 6y 5m, a Bullfinch 6y 0m, a Reed Warbler at 5y 11m, a Great Tit at 5y 10m, a Robin at 5y 6m, a Blackbird at 5y 3m, a Dunnock, a Blue Tit and a Goldfinch all at 5y 0m, a Reed Bunting at 4y 11m, a Greenfinch at 4y 1m, a Garden Warbler at 4y 0m, a Great spotted Woodpecker at 3y 5m, a Song Thrush at 3y 4m, a Wren and a Willow Warbler both at 3y 2m and a Blackcap at 3y 0m.

The group put on several ringing demonstrations for the public, and the Group's ringing was covered on BBC Radio Cambridgeshire as part of the British Trust for Ornithology's centenary of bird-ringing in Britain.

In summer 2009 we continued - for the 40th successive year - our 'standard sites sessions'. These special ringing visits involve placing nets in exactly the same sites, for exactly the same time, at exactly the same dates every year, and enable us to monitor the breeding population of birds at the Fen.

As well as trapping and ringing birds, Group members during the year also conducted several bird surveys, to establish the overall winter and summer bird populations of the Fen (both on the 'classical' Fen and the more recently acquired 'Vision lands').

And in more detailed breeding studies, Group members reported on the progress of exactly 100 nests of 24 species of bird. Bird breeding was generally successful at the Fen in 2009, with Cuckoos still doing quite well in the face of a National decline. Marsh Harriers and Herons continued their breeding on the Fen, while Bearded Tits and Stonechats bred for the first time for a number of years. Avocets bred successfully for the first time ever, and a pair of Bitterns also attempted, but were sadly unsuccessful.

The Secretary has maintained production of regular Bulletins (six during 2009), keeping members and friends informed of ringing activities and general bird observations at Wicken Fen. He also produced monthly summaries of the Group's activities, which are posted in the Thorpe Building and on the Wicken Fen website.

### **Wicken Fen (Bird Ringing) Group Nest Recording Report 2009**

Information on when birds commence laying, the number of eggs they lay, the chicks hatched and then fledged can greatly contribute to the understanding of the ecology of bird species. In 2009 the Group decided to try to find and record nests at the Fen, outside of the nest boxes. Success is only possible if you can find the nests, and we discovered that nests of even common birds can be remarkably elusive. At the Fen we have been fortunate to have Carl Barimore and Phil Harris, expert nest finders, who assisted the Group with finding many nests. Once nests have been located the next challenge was to monitor the nests through to fledging, or failure. We found that even re-finding a known nest can be a challenge. We also checked the 63 tit boxes and the 4 Owl and Jackdaw boxes. Chris Thorne's presence on the Fen was vital so as many of the pulli as possible were ringed.

We were delighted to send 100 records of nests which had reached at least egg-laying stage to the BTO in our first year. We don't, as yet, have enough records to assess local success, but our data will contribute to national analyses. We did not that Blue Tit and Great Tit monitored in nest boxes suffered a high level of predation, with fledging success of 31% and 39% respectively.

2009 Wicken Nests, as reported to the BTO. Number of Nests monitored (pulli ringed from monitored nests)

Barn Owl	2 (7)	Magpie	1 (0)
Blackbird	14 (11)	Moorhen	1 (0)
Blue Tit *	18 (41)	Pied Wagtail	1 (5)
Bullfinch	2 (3)	Reed Warbler	1 (0)
Chaffinch	1 (0)	Robin	2 (0)
Collared Dove	2 (0)	Song Thrush	6 (5)
Coot	3 (0)	Stock Dove	1 (2)
Dunnock	2 (2)	Swallow	9 (24)
Grasshopper Warbler	1 (0)	Tree Creeper	1 (0)
Heron	1 (2)	Willow Warbler	1 (0)
Great Tit *	22 (74)	Wren	2 (0)
Jackdaw	3 (5)	Cuckoo	In Reed Warbler nest (2)
Long-tailed Tit	3 (0)	(* all in nest boxes)	

Anyone interested in joining the Group is welcome to contact the Secretary Dr Chris Thorne, at St. Catharine's College, Cambridge, CB2 1RL, tel: 01954 210566, email [cjrt@cam.ac.uk](mailto:cjrt@cam.ac.uk).

## **Cetti's Warblers at the Wicken Fen reedbed**

Cetti's Warbler – a non-migratory warbler found as recently as the 1920s only in the Mediterranean – is still dynamically expanding its range. Cetti's was first recorded for the British list only in 1961 and first bred, in Kent, in 1972/3. The first record for Cambridgeshire was in 1977, and the first proven county breeding – at Wicken, of course – was 1980; a bird caught on the Fen that year had been ringed at Hoddesdon. This initial colonisation, however, petered out after the hard winter of 1984/5, and no Cettis were to be proved breeding again in the county until 2004 (at two different sites that year, but not at Wicken).

The first Cetti's Warbler of the current recolonisation at Wicken was caught on St Edmund's Fen in March 2005. Then four juveniles were caught in late summer 2005 at the reedbed in the south-west corner of the Fen – perhaps youngsters dispersing from St Edmund's, where a fifth juvenile had also been caught.

Five years on, Cetti's are now widely distributed across the Fen wherever there are damp ditches and deep cover. However, the reedbed remains at the heart of this recolonisation. Of the 288 Wicken Fen Group captures of 121 different individual Cettis since 2005, 213 captures (74%) have been at reedbed sites – in fact, in the small study area within 300 metres of the Group's reedbed ringing hut. Other parts of the Fen, and in particular the wooded carr of St Edmund's, provide less suitable Cetti's habitat and hold fewer birds.

Cetti's are usually polygynous and multi-brooded, so can be very productive in a good year. The 2009 breeding season proved exceptionally good for all reedbed species, particularly Reed and Sedge Warblers, and the Reedbed Cetti's were no exception. In the six months from 1 June, the WFG handled 45 different Cettis at the Reedbed – that is again all within a few hundred yards of each other. Most of these were young birds of the year; in fact only five certain adult individuals were caught in this period. The five comprised the oldest male, one of the birds first ringed as a juvenile in 2005, and perhaps his harem of four females. This dominant male was the only adult male at all caught during the six months from June 2009.

Other studies have suggested that most breeding sites are abandoned in midwinter, with birds making local movements away, then returning in March and April. This is not true at Wicken where singing is heard and birds are caught throughout the winter. But there is some evidence of certain birds being present either in winter or summer but not both.

With numbers having been so high in Autumn 2009, there was naturally some concern as to the effect of the severe weather of early January 2010 on this very susceptible species. In fact, the reedbed Cetti's seemed to come through well. As it turned out, seventeen birds (10 males, seven females) are known to have been alive at some point during the three winter months December-February, either because they were caught then, or have been caught subsequently. In the spring period March-May this had dropped to ten (seven males and three females), but this number is difficult to interpret.

At any time of year many more males are caught than females. Males may be more readily caught, as they actively defend or encroach upon territories while females maintain a lower profile, particularly when breeding. Or there may be simply more males in the population. In common with other species, it is female Cetti's which tend to disperse further and pioneer new colonisations. The first arrival at Wicken in 2005 was a female, as was the only incoming controlled bird (ringed as a juvenile at Hollesley, Suffolk two years earlier) and as have been all the adult birds arriving unringed into the study area.

By the end of the summer, it looks as if things haven't gone so well for the Cetti's in 2010, at least within this very small study area. Fewer than twenty juveniles have been caught up until the end of October, way down on 2009. While three younger males were around during the summer, the old dominant male from 2005 hasn't been caught since April, so he may sadly have finally died. With his passing we may have lost the high productivity of the last few years.

*Michael Holdsworth*

## Moths and other species records

Only three groups came to the Wicken for moth trapping during 2009 and one in 2010. It is still a great place for moth trapping (light or why not try 'sugaring?'), so please do come to Wicken - both the classic Fen and the new Vision lands offer lots of interest and the potential for new finds or re-discoveries.

Some interesting recent species records are:

*Nematopogon swammerdamella* (Adelidae): A new micro-moth for the Wicken Fen list, found on the Sedge Fen at TL560705 on 28/06/2009 by Mark Skevington. This is the largest of Britain's 'longhorn' moths.

*Monopis weaverella* (Tineidae); A new micro-moth for the Wicken Fen list, with several found on the Sedge Fen on 04/08/2009 by Brian Elliott.

Badger (*Meles meles*): An active badger sett was found by Tracey McLean in a bank close to Pout Hall on Burwell Fen. Surprisingly this is the first record of a badger sett at Wicken!

Otter (*Lutra lutra*): Fresh spraints have been found on several occasions by Tracey McLean in 2009 and 2010, on willow branches in St Edmund's Fen, that have lying close to Monks Lode. Pete Stroh was delighted to spot an adult in a ditch on Burwell Fen in June 2009.

*Andricus quercuscalicis* (Cynipidae; Hymenoptera): The distinctive Knopper Gall, caused by a tiny wasp, was abundant on the Oaks in the car-park, spotted by Stuart Warrington in Sept 2010, and surprisingly a new species for the Fen list. This species also requires Turkey Oaks to complete its life cycle, so there must be one or more of these up in Wicken Village.

*Perithous albicinctus* (Ichneumonidae; Hymenoptera): Jim Brock added this parasitic wasp species to the Fen list, when he found it in a Malaise trap he set in St. Edmund's Fen in 2008. From the same trap he also added further new Ichneumonidae, *Lissonota nigridens*, *Ichneumon gracilentus*, *Hepiopelmus melanogaster*, *Glypta scutellaris*, *Glypta extincta* and *Deuteroxorides elevator* (a specialist associated with Coleoptera living in decaying timber).

Caddisfly (Trichoptera) experts, the Wallace family (I.D., B., M.C.) visited the Fen in 2009, and recorded 32 species. Amongst their observations was the first confirmed record of *Oxyethira flavicornis*, the first record for 70 years of *Notidobia ciliaris*, and the first record for 30 years of *Mystacides azurea*.

## Beetle biodiversity in dung

The number and biomass of invertebrates breeding in dung can be considerable. It has been estimated that the dung produced by a single cow over the course of a year can support the larval development of over two million insects. Much is known in general about the range of species which might occur in dung, the sequence of their colonisation and the effects of season and circumstance on the character of the fauna. However, every site and every assemblage is likely to have its own individual characteristics.

The fauna supported by dung depends on the species and breed of mammal which produced it, the food consumed, the time of year, and the circumstances in which it is found. The fauna of dung in woodland is different to that in open grassland, and the fauna of dung on well-drained ground differs from that of damp pasture. Most significantly, the fauna associated with animals treated with avermectins is very different and much reduced, to that for animals treated with no such chemicals.

At Wicken Fen, free-ranging Konik ponies and highland cattle are a key part of the site's management, especially in the Vision area where land is being restored to wetland from arable farming. These animals are allowed to choose where they roam and what they eat. They do not get treated with the routine drugs that many domestic animals do. Research has been ongoing on their effects on the vegetation and is just underway on their social behaviour. But what of the dung fauna?

On 4 June 2010, expert Coleopterist Colin Welch spent one day at Wicken, and in addition to examining the beetles of a sedge pile on the classic Fen, he collected dung samples from Baker's Fen, an area restored to wet grassland over 10 years ago where Koniks and Highlands roam, and from Verrall's Fen, a part of the old fen where a small group on Koniks are kept to help with the fen vegetation management.

Colin found more than 120 species of beetle, of which 72 were found associated with the dung. There were notable differences in the beetle fauna from the three different types of dung, with the Konik dung from Baker's Fen being almost twice as species rich as the other two locations (see Table 1) and having far more unique species. Several species were very abundant, with dozens being found in every dung sample.

**Table 1. Summary of the Beetle Fauna associated with dung collected from Wicken Fen on 4 June 2010 by Colin Welch.**

Location	Baker's Fen	Baker's Fen	Verrall's Fen
Dung type	Highland cattle	Konik pony	Konik pony
Number of Species	27	60	32
Unique Species	4	29	8

Sixteen species were found in all dung types but the majority of species were either found in Konik or Highland dung, and many of these were only found in one location. Ten species were new to the Wicken Fen list which is a high number given that the Wicken list of beetles is over 1,500 species. Three of these new species were found in all dung types, with 6 in Konik dung only, and 1 in cattle dung only. In addition, there were 18 species that were last recorded more than 75 years ago, at a time when many of the entomologists and other visitors to Wicken came by pony and trap from Soham railway station, and most locals kept horses and cows.

What can we conclude from this brief survey? Clearly the dung resource at Wicken is very valuable to many species of beetle. To get a better picture of the value of this superior dung resource, you would also need to sample dung in spring, late summer and autumn, and also look at other invertebrates (flies especially). This is not easy, either to sample the fauna or to identify it.

The abundance of the dung beetle fauna was something other people had noticed, because if you kick over a pile of newish horse dung at Wicken, it positively heaves with movement and you never see that from the dung from a domestic horse (you do get some funny looks if you crouch down and stare at dung piles but you do see 'wildlife'!).

**Some of the interesting beetle records by Colin Welch were:**

*Cercyon impressus* (Hydrophilidae): In konik pony dung, Baker's Fen, first record for 80- years.

*Cercyon terminatus* (Hydrophilidae): In highland cattle dung, Baker's Fen, a new, local species for the Wicken list.

*Sphaeridium marginatum* (Hydrophilidae): In konik pony dung, Verrall's Fen. A common beetle associated with dung, but a new species for the Wicken list.

*Acrotichis dispar* (Ptiliidae): In konik pony dung, Verrall's Fen. A tiny featherwing beetle, rarely recorded, and a new species for the Wicken list.

*Aleochara verna*, *Atheta liturata*, *Badura macrocera* (Staphylinidae): In konik pony dung, Baker's Fen. Small rove beetles and all new for the Wicken list.

*Aphodius sphacelatus* (Scarabaeidae): Very abundant in konik pony dung, Baker's Fen. A dung beetle, new to Wicken.

*Onthophagus similis* (Scarabaeidae): Males found in konik pony dung, Baker's and Verrall's Fen. New to Wicken. This species has a patchy UK distribution but with many records in the Fens.

*Stenus aceris* (Staphylinidae): A small, quite widespread rove beetle, found in a sedge heap on the Sedge Fen, new to the Wicken list.

**Other beetle records of note:**

*Hydaticus transversalis* (Dytiscidae): One was netted from Verrall's Fen: Howe's Dyke 87a at the north end (TL548708), by Stuart Warrington on 15/10/2009. This is a red data book diving beetle, well known from Wicken in the past, but this was the first record for 31 years! (despite so many surveys of the insect life in the ditches and ponds)

*Oiceoptoma thoracicum* (Silphidae): The Red-Breasted Carrion Beetle. A very local species and new to Wicken. This was photographed by a visitor on a muntjac carcass and on a different day seen by Martin Rezek. Both observations in 2009 on the old fen.

*Cionus tuberculatus* (Curculionidae): A weevil, new to the Wicken list. Swept by Peter Kirby Adventurers' Fen: Brett's Piece (TL559699) on 25/06/2009.

*Gymnetron villosulum* (Curculionidae): A weevil, new to the Wicken list. Swept by Peter Kirby from Adventurers' Fen: Ditch 60/61 (TL556694) on 25/06/2009.

*Protapion apricans* (Apionidae): A common weevil, new to the Wicken list. Swept by Peter Kirby from Baker's Fen: Compartment 101: East Pond (TL562698) on 25/06/2009.

*Isochnus sequensi* (Curculionidae): Only the second Wicken record for this RDB beetle. Found by Trevor James on 20/05/2010 to be locally abundant on old *Salix fragilis* trees by ride by Compartment 11 of the Sedge Fen (TL558708).

*Rhagonycha lignosa* (Cantharidae): Specimens beaten from Aspen and Willow by Trevor James on 20/05/2010, Compartment 11 of the Sedge Fen (TL558708). New for Wicken list, but a very common and widespread soldier beetle species.

*Stenus ater* (Staphylinidae): First record since 1925 of this nationally scarce (Nb) rove beetle, by Trevor James on 20/05/2010, Compartment 11 of the Sedge Fen (TL558708). New for Wicken list.

*Stenus fulvicornis* (Staphylinidae): Suction sample from Adventurers' Fen: Brett's Piece (TL559699) by Peter Kirby on 26/06/2009. A common rove beetle, but new for the Wicken list.

*Scaphidium quadrimaculatum* (Staphylinidae): 1 adult in fallen willow log by the ponds in Guinea Hall: Compartment 108 (TL570700) on 06/04/2010 by Stuart Warrington. A local saproxylic beetle. New for Wicken.

*Microlestes minutulus* (Carabidae), a small black ground beetle, is a relative newcomer to Britain, and has been spreading. It usually likes dry ground and we found it close to open fields. Swept by Pete Brown from vegetation on the Sedge Fen, on 20/05/2010.

*Aplotarsus angustulus* (Elateridae), a small click beetle and a nationally rare species so far only known from a handful of localities in south Wales and Somerset! Swept by Trevor James from vegetation on the Sedge Fen, on 20/05/2010.

*Choleva oblonga* (Leiodidae). A secretive species not noted at Wicken since the 19th century. Swept from the edge of a damp ride in Cmpt 15 by Trevor James on 20/05/2010.

There were further species found by Trevor and Pete not recorded at Wicken since the 1920s – *Stephostethus angusticollis* (Latriidiidae), *Stenus ater* (Staphylinidae) and *Bruchus atomarius* (Chrysomelidae).

**The new species added to the Wicken Fen list bring the total number of beetle species recorded to 1,548 of which 90 are Red Data Book and 251 are nationally scarce.**

## Wicken Fen dipwell chemistry

Fourteen dipwells at Wicken Fen were sampled on 9 April 2010, and the water samples subjected to 12 different chemical analyses (pH, electrical conductivity, nitrate, sodium, potassium, calcium, magnesium, aluminium, iron, manganese, phosphorus and sulphur). The aim was to understand the nature of the groundwater chemistry at Wicken Fen in advance of plans to discharge water from Monk's Lode on to Sedge Fen in early 2011.

The water levels recorded in the dipwells in February 2009 were highest near Cross Dyke at the southern end of Verrall's Fen and in the western part of Sedge Fen (>2.0m OD). The lowest water levels in February were to the southwest of Verrall's Fen, to the north at Spinney Bank and close to the Visitor Centre. In contrast, the water levels in September 2009 were highest near Cross Dyke, along Gardiner's Drove, near the Visitor Centre, and at Spinney Bank (>1.4m OD), and lowest in the western part of Verrall's Fen and in the centre of Sedge Fen. In many areas, this represents a summer draw-down in excess of 70cm.

#### *pH & electrical conductivity*

The pH of groundwater in the dipwells varied from slightly acid (6.28) to slightly alkaline (7.70). The lowest pH values were to the south of Verrall's Fen, and in the centre of Sedge Fen. The highest pH values were at Spinney Bank and close to the Visitor Centre. Electrical conductivity (EC) ranged from 166 $\mu$ S/cm (oligotrophic) to 3655 $\mu$ S/cm (eutrophic). EC values were lowest across Verrall's Fen, and highest to the east of Sedge Fen and particularly near the Visitor Centre.

#### *Nitrate & phosphate*

Nitrate values across the fen ranged from 1.8mg/l to 9.8mg/l. The lowest values were south of Verrall's Fen and at Spinney Bank. The highest values were at the western end of Sedge Fen Drove and near the Visitor Centre. Phosphate values (expressed as orthophosphate) ranged widely from 0.1mg/l up to 23.8mg/l. The lowest phosphate values (<5mg/l) were recorded from Verrall's Fen and the western part of Sedge Fen. The highest phosphate values were from the eastern part of Sedge Fen, and particularly from the near the Visitor Centre.

#### *Calcium & potassium*

Calcium values ranged widely from 31.3mg/l to 661.7mg/l. The lowest values were from the southern part of Verrall's Fen and western part of Sedge Fen. The highest values were from Sedge Fen Drove and near the Visitor Centre, although most of Sedge Fen had moderate calcium values (200-400mg/l). Potassium values ranged widely from 0.5mg/l up to 52.5mg/l. The lowest potassium values (<2mg/l) were recorded from Verrall's Fen and the western part of Sedge Fen. The highest potassium values were from the eastern part of Sedge Fen, with a marked peak near the Visitor Centre.

#### *Sodium & magnesium*

Sodium values ranged widely from 11.7mg/l to 165.9mg/l. The lowest values (<30mg/l) were from the southern part of Verrall's Fen. The highest values were from Sedge Fen Drove and near the Visitor Centre. Magnesium values ranged widely from 1.7mg/l up to 70.7mg/l. The lowest values were recorded from Verrall's Fen, the western part of Sedge Fen and Spinney Bank. The highest magnesium values were from the eastern part of Sedge Fen and near the Visitor Centre.

#### *Aluminium, iron, manganese and sulphur*

Aluminium values ranged from 0mg/l to 0.2mg/l. The lowest values were from the eastern part of Sedge Fen near the Visitor Centre. The highest values were from the southern part of Verrall's Fen. Iron values ranged from 0.03mg/l up to 0.62mg/l. The lowest values were recorded from the northern part of Sedge Fen and Spinney Bank. The highest iron values were from the southern part of Verrall's Fen, the southern part of Sedge Fen and near the Visitor Centre. Manganese values ranged from 0mg/l up to 1.9mg/l. The lowest values were recorded from the northern part of Verrall's Fen and Spinney Bank. The highest manganese values were from the eastern part of Sedge Fen and near the Visitor Centre. Sulphur values ranged widely from 0mg/l up to 1158mg/l. The lowest values were recorded across Verrall's Fen, the western part of Sedge Fen and Spinney Bank. The highest sulphur value was an extreme peak from near the Visitor Centre.

Given the relative paucity of the dipwells, care must be exercised when interpreting the geochemical data, especially when they are extrapolated into colour contour plots that give the illusion of continuous data across the site. However, some of the patterns in the data are so striking that it is difficult to believe that they are artefacts of chance in sampling and analysis.

The differences in the February and September water tables clearly show that the south-western part of Verrall's Fen is susceptible to low water tables and extreme draw-down. The same is true for Wicken Poors' Fen, although the chemistry data do not extend to these dipwells. In contrast, it is clear that areas near Cross Dyke, Gardiner's Drove and near the Visitor Centre have high winter water tables that fall least in the late summer. Spinney Bank is odd because it shows reasonable stability of the water table (relatively low in winter and relatively high in summer).

If low pH and low EC are taken as proxies for rainwater recharge, then the southern part of Verrall's Fen and western part of Sedge Fen are indicated as likely recharge centres. This assumption is supported by the low concentrations of alkali metals (Ca, Mg, Na, K) and nutrients (nitrate & phosphate). Iron and Aluminium present at modest concentrations may be associated with the more acid water in these areas.

The 'elephant in the room' in this dipwell chemistry is the anomalous data from dipwell 17 near the Visitor Centre, which gives elevated values for pH, EC, nitrate, phosphate, calcium, potassium, magnesium, manganese and notably sulphur. It would be tempting to reject this peak in readings if it were not for the high values also obtained from the eastern part of Sedge Fen for many of these determinands. If this data is correct, the inescapable conclusion appears to be that the groundwater in the eastern part of Sedge Fen has become contaminated with quite high levels of nutrients. These may be accelerating microbial activity in the peat.

Apart from the obvious problem at dipwell 17, there is the suggestion of ingress of non-rainfall water around the edges of the site. For example, Sedge Fen Drove has a pattern of elevated EC, high calcium and high sodium unusual at the site. Another example of this is at the extreme south-west of Verrall's Fen (dipwell 2), which also has a 'blip' of EC, calcium and sodium. This calcium-sodium signature may represent the hitherto unrecognised ingress of low-nutrient groundwater into the site. Finally, where Sedge Fen Drove meets Drainer's Dyke, the pH and nitrate are elevated above that expected for the location in the west of Sedge Fen. This may be the result of a local (or 'spot') eutrophication event.

It is clear that the groundwater does not behave in a uniform way across Wicken Fen and that the groundwater chemistry is also rather different across the site. Apart from forming a baseline against which future changes can be measured, it is hoped that continued monthly monitoring of the dipwell chemistry may resolve some of the issues surrounding contamination by nutrients and possible non-rainwater sources for the fen.

The full report is available from *Dr Steve Boreham*, email: [sb139@cam.ac.uk](mailto:sb139@cam.ac.uk)

## Water Voles at Wicken Fen

Emily Stallworthy and Ellie Crane, two students from the Univ. East Anglia carried out their MSc projects investigating water vole ecology and distribution at Wicken in the summer of 2009. Their findings were very interesting and useful for the NT, in evaluating how the work on the Vision land is progressing. Water Voles re-colonised the Fen in 2006, having not been observed in the area since 1987. Since 2006, they seem to have been thriving in the Wicken area, with several sightings of voles and lots of signs of latrines and feeding. Emma and Ellie carried out a systematic survey, with standardised method and sampled a large number of ditches across the old Fen, Adventurers' Fen and more recently restored areas. They found signs of water voles in almost every internal ditch in the Vision area. In summary: Adventurers' Fen (TL5569) had an estimated water vole population of 46.5 / km<sup>2</sup> (5.8 per 100m of ditch), Baker's Fen (TL5669) of 24.7 / km<sup>2</sup>, and Sedge Fen (TL5570) of 5.7 / km<sup>2</sup>. The low population on the Sedge Fen may be due to the steep, almost vertical edges of the ditches, the soft peat, and high water table for much of the year, conditions which are not ideal for the voles' burrows. Vole signs were found in Burwell Fen but in lower frequency. The extensive area and range of habitats available in Adventurers' Fen, which includes long lengths of ditches, ponds, and the Mere, is probably the reason why water vole densities were highest here. It is also noteworthy that water voles were present in good numbers in the well-managed ditches at Spinney Abbey Farm to the north of Wicken Fen.

# National Dragonfly Centre opens at Wicken

The National Dragonfly Centre at Wicken Fen was opened in July 2009 by naturalist and Springwatch presenter, Chris Packham. This was a joint initiative between the National Trust, the British Dragonfly Society and the Dragonfly Project. The centre is housed in a former fen worker's cottage, which was in a very poor condition before the renovation work.

Wicken Fen is one of the best locations in the UK to spot Dragonflies with 22 resident species, including the small red-eyed damselfly which has recently been recorded on the Fen. The centre will be open at weekends, volunteers will organise dragonfly safaris, and hopefully it will help increase visitor numbers to Wicken Fen as well increase people's appreciation of these wonderful insects.



## Publications

Terry Rowell compiled an extensive and impressive bibliography for Wicken, which has been updated by Laurie Friday, Adrian Colston and Stuart Warrington. It can be viewed or downloaded from the Wicken website at: [www.wicken.org.uk/research\\_bibliography.htm](http://www.wicken.org.uk/research_bibliography.htm).

Recent publications that refer to Wicken include:

- Appleby, G., Evans, C. & Vickers, T. (2007) *The National Trust Vision Area: an archaeological desktop assessment*. Cambridge Archaeological Unit, University of Cambridge. Report to The National Trust.
- Drane, T. & Warrington, S. (2009) Noteworthy beetles found at Wicken Fen, Cambridgeshire, between 2004 and 2007. *The Coleopterist*, **18**: 17-24.
- Foster, G.N., Bilton, D.T., Routledge, S. & Eyre, M.D. (2008) The past and present status of *Hydroporus rufifrons* (Muller)(Dytiscidae) in Great Britain. *The Coleopterist* **17**: 51 – 63 [includes details of the three Wicken Fen records, pre-1930]
- Hughes, F.M.R., Stroh, P., Mountford, J.O., Warrington, S., Gerrard, C. & Jose, P. (2008) Monitoring large-scale wetland restoration projects: Is there an end in sight? in P. Carey (ed.) *Landscape Ecology and Conservation*. Proceedings of the 15th Annual Conference of the International Association for Landscape Ecology, Cambridge, UK, September 8-11th, 2008 p.170-179.
- Millar, N. (2007) Reed Beetles. *Nature in Cambridgeshire* **49**: 51-55. [includes details of Wicken Fen records]
- Ringwood, Z. & Roscoe, A. (2008) The ecology and conservation of the plume moth *Emmelina argoteles*. Report to The National Trust and SITA Trust. [this species was recently discovered new to GB by Jeff Higgott at Wicken Fen]
- Roberts, R.L., Donald, P.F. & Green, R.E. (2007) Using simple species lists to monitor trends in animal populations: new methods and a comparison with independent data. *Animal Conservation*. **10**: 332-339. [data from Wicken Bird group]

- Stroh, P. A., Hughes, F. M. R., Mountford, J. O., & Sparks, T. H. (2010). The influence of time on the soil seed bank and vegetation across a landscape-scale wetland restoration project. *Restoration Ecology* doi: 10.1111/j.1526-100X.2010.00740.x [in press, but available online]
- Warrington, S., Soans, C. & Cooper, H. (2009) The Wicken Fen Vision: the first 10 years. *Ecos*, **30**: 58 – 65.

## Stratigraphy of sediments at Reach Lode Bridge

This study focuses on sediments described and sampled from eight boreholes sunk at the site of Reach Lode Bridge. The boreholes were sunk at approximately 20m intervals (BH 3A, 3, 4 & 5) on the western side of the Lode, and at approximately 10m and 20m intervals (BH 6, 6A, 7 & 8) on the eastern side. Survey boring was principally undertaken with a narrow gauge auger. All boreholes were stopped on either gravel or Gault Clay bedrock.



In general, the sediments comprised silts and organic detrital muds, with occasional layers of wood peat and peaty marl. Plant remains (leaves, stems), wood, rootlets and mollusc shells occurred frequently in the sediments. The longest sequence was 451cm from BH6.

### *Historical context*

It is clear that the exact location of Reach Lode Bridge within the local Fenland coincides with a number of important landscape features. Firstly, it is apparent that its position lies exactly on the west-east course of a sinuous palaeochannel, which can be seen clearly in aerial photography of the area. Indeed it is likely that the location of the trackways either side of Reach Lode, which determined the position of the bridge, were originally positioned in this location to exploit the slight increase in elevation caused by the silty palaeochannel 'roddon', compared with the surrounding peat fen. Secondly, Fowler (1933) and Astbury (1957) point out the line of Reach Slade, an extinct Roman waterway that runs adjacent and parallel to the western side of the modern course of Reach Lode from Reach to Upware. The bed of this abandoned channel apparently filled up with Chara marl, and due to desiccation and peat wastage became raised above the surrounding fen. The hardness of the chalky desiccated marl and the straightness of its course led some to incorrectly believe that it was in fact a Roman road (Astbury 1957). The boreholes in this survey were located by Oxford Archaeology East to investigate the earlier palaeochannel feature, rather than the Roman course of Reach Slade. The deepest part of the palaeochannel encountered in this survey was at BH6, although it is entirely possible that beneath Reach Lode itself, the palaeochannel is rather deeper.

### *Palaeochannel stratigraphy*

The geological section through the palaeochannel at the site of Reach Lode Bridge shows an asymmetric channel-form cut into Gault Clay bedrock. It should be noted that the channel might appear wider than expected because this cross-section cuts obliquely across the line of the palaeochannel, rather than bisecting it at 90°. However, the eastern 'river cliff' and shallow western 'slip-off slope' accompanied by basal sand and gravel is typical of a point bar formed in a meander bend. The base of this palaeochannel as detected in boreholes reaches down below -5m OD, although beneath the Lode it could conceivably be deeper. Based on recent dating of river sediments in southwest Fenland by Ben Geary (pers. comm.) from Birmingham University, this elevation could easily equate to 4000 years BC (early Neolithic), although it is presumed that the original channel may have been cut in the Late Glacial period.

The oldest sediments (I) are confined to the base of the channel-form and comprise sands, silts, marls and occasional lenses of wood peat. These sediments represent flood and channel deposits, pools and areas of wet woodland (carr). Above this, there is an extensive accumulation of organic silts and detrital muds (II)

suggesting deposition in low-energy eutrophic fen and mire environments. Overlying this and confined to the channel is a lens of silts and marl (III), apparently associated with the re-activation of the channel. There is then a widespread return of fen and mire conditions leading to the accumulation of organic silts, detrital muds, marls and wood peats (IV) across the whole area. Finally, peat (presumably Iron Age to Medieval) appears to have grown across the site (V).

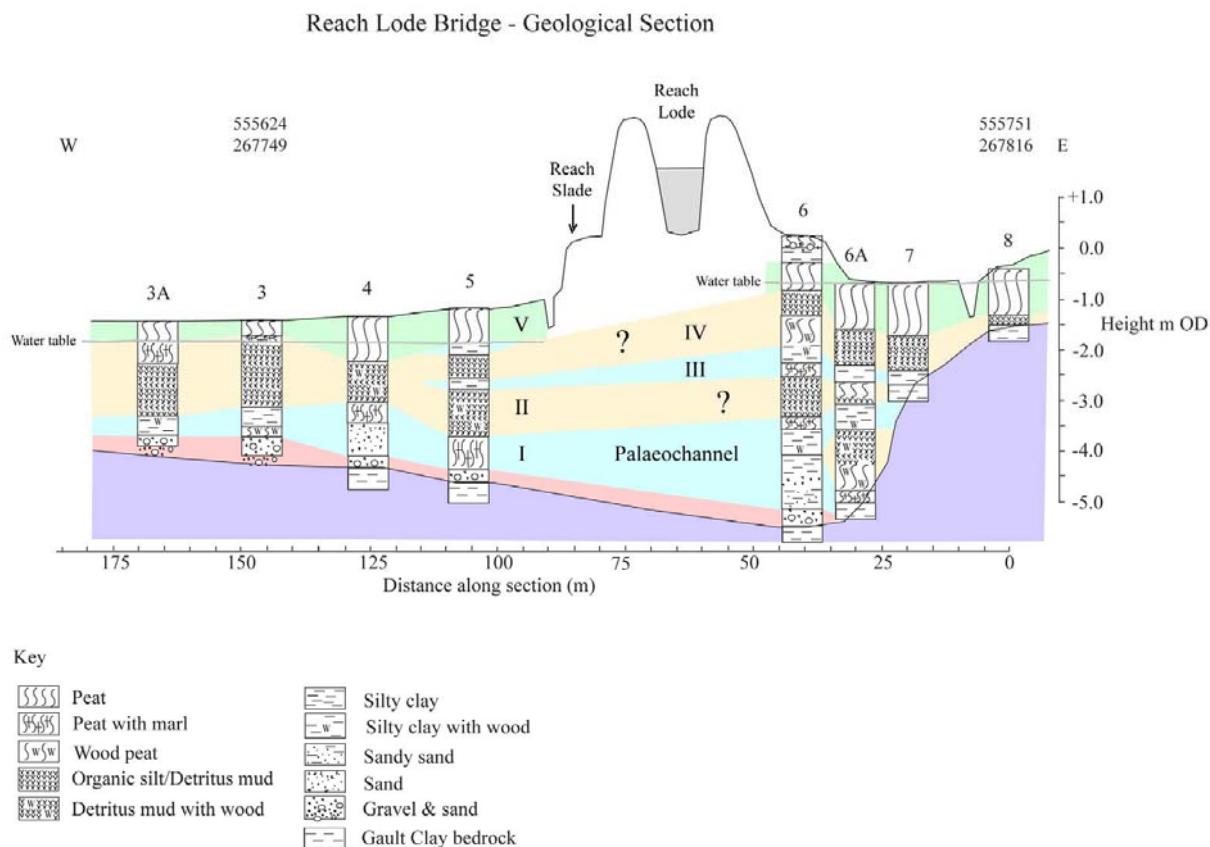


Figure 2

#### *Potential for palaeoenvironmental analyses and dating*

The archived cores from the longest part of the sequence (BH6) have been examined to assess their potential for the preservation of organic remains (pollen, plant macro-fossils), molluscs, and their potential for radiocarbon dating. The unique position of the BH6 sequence beneath a 'cap' of puddled Gault Clay on the eastern Lode bank, and within a channel-form, appears to have created ideal conditions for the preservation of sediments, when compared with the relatively degraded material from the other boreholes. It seems that in this 'sheltered' position, the sequence has avoided both the worst extremes of aerobic microbial degradation of organic material and the large annual fluctuations in water table so typical of agricultural Fenland. The preservation potential of much of the archived sequence (BH6) is therefore 'good' to 'excellent' in respect of palaeoenvironmental indicators. Only the top-most part of the sequence, above the winter water table, shows evidence of degradation. The presence of carbonate-rich sediments with an 'ancient' source of carbonate (Chalk) is always problematic for radiocarbon dating. However, the occurrence of wood throughout a large part of the sequence offers the possibility of either bulk or ams radiocarbon dating. There is also the possibility that seeds of terrestrial plants could be isolated from the sediments for individual ams dates, if required. Radiocarbon dates from the base and top of the sequence from BH6 would give estimates for the on-set and cessation of palaeochannel sedimentation. There is the potential that this sequence covers the Neolithic, Bronze Age and early Iron Age. Indeed, the silty reactivation of the channel (III) may correspond to the marine incursion of the early Bronze Age (cf. River Ouse at Earith & Over). A third radiocarbon date, targeting the silt lens (III) could provide confirmation of this. A pollen assessment of twelve samples from this

sequence would allow the changing vegetation and landscape around the palaeochannel to be investigated, and could also help to detect episodes of human disturbance and agriculture. There is also the possibility of targeted mollusc and plant macro-fossil analyses from these cores, although these may not become necessary until after the dating and pollen analysis has been completed.

#### References

Astbury, A. K. (1957) *The Black Fens*. The Golden Head Press, Cambridge.

Fowler, G. E. (1933) Fenland waterways, past and present. South Level District. Part I. *Proceedings of the Cambridge Antiquarian Society* 33, 108–128.

Dr Steve Boreham, March 2010

The full report is available from Dr Steve Boreham, email: [sb139@cam.ac.uk](mailto:sb139@cam.ac.uk).

## Wicken area fish surveys

Over the past years, the Environment Agency has carried out occasional fish sampling in the Lodes around Wicken Fen and the Vision land using nets or electro-fishing. Two data sets are shown below. A possible decline in fish numbers over the years may be shown by the data?

#### Wicken Lode

Two sites were used in 1993 and 1997 and one site in 2003. Site 1 was close to Wicken Village and site 2 was at the confluence of Wicken Lode and Burwell Lode. All results from electro-fishing.

Species	1. 28/4/1993	2. 27/4/1993	1. 4/6/1997	2. 5/6/1997	1. 26/6/2003
Bitterling	3	21	0	1	0
Common Bream	2	0	0	0	0
Dace	0	0	0	1	2
European eel (elvers)	0 (41)	0 (27)	0 (20)	0 (12)	1 (0)
Perch	104	31	50	47	24
Roach	445	248	175	121	69
Rudd	98	0	33	61	2
Silver Bream	0	0	2	6	0
Tench	5	0	3	5	1
Pike	69	20	13	12	2
Total	767	347	297	267	101

One roach x common bream hybrid and One roach x rudd hybrid were caught at 2. 5/6/1997.

#### Burwell Lode

These results are for the site of the Cock-up Bridge. Methods were Seine netting, electro-fishing, Seine netting, electro-fishing and electro-fishing, respectively. There were also surveys for the Burwell Village end of Burwell Lode, and at Upware, with similar results. Roach was the dominant species in all surveys. An additional species caught in very low numbers at Upware was Zander (*Sander lucioperca*).

Species	27/10/1987	18/10/1990	16/4/1993	24/4/1998	2/7/2003
Bitterling	168	112	85	14	8
Common Bream	34	17	3	0	4
Dace	0	3	1	0	2
European eel (elvers)	0 (4)	0 (16)	0 (9)	0 (0)	6 (0)
Perch	45	74	82	8	68
Roach	1338	1281	1402	77	98
Rudd	16	2	9	3	0

Silver Bream	3	0	38	0	0
Tench	0	3	11	4	1
Pike	4	21	25	8	6
Common [wild] carp	0	0	0	1	1
Gudgeon	4	3	0	1	0
Ruffe	6	0	13	0	0
Total	1620	1535	1685	194	116

Roach x common bream hybrids were caught on 1<sup>st</sup> 3 dates (1, 2, 7)

### Wicken Mere, Adventurers' Fen.

Roger Beecroft and Matt Self carried out a series of four electro-fishing transects around the Mere on 24 February 2010. A total of 11 fish were caught of 5 species, Roach, Rudd, Bream, Perch and Pike. It was estimated that on the survey date there was a density of 153 fish per hectare and a biomass of 6.3 kg/ha.

### Spined Loach (*Cobitis taenia*)

Mark Tomlinson (ECON Consultancy) was commissioned by Natural England to survey for spined loach in 2009 in several parts of the Great Ouse catchment. This species is recognised as threatened in Europe and has been listed under Annex II of the EC Habitats Directive. A Spined Loach density of 0.15 ind. m<sup>-2</sup> was recorded for Wicken Lode and Monk's Lode at Wicken Fen. Densities ranged from 0.3 to 0.27 ind. m<sup>-2</sup> at Wicken Lode and an abundance estimate of 0.22 ind. m<sup>-2</sup> calculated for Monk's Lode. Spined Loach born in 2008 (1+ fish) were the dominant age class, although young-of-year fish (30 to 42mm) contributed 28% of the total catch. These results indicate a viable population within Wicken Fen, which had increased since the previous survey. The distribution of Spined Loach within the sampled area of Wicken Fen appeared to be linked positively with the cover of submerged macrophytes (more plants, more loach).

## Botanical Records

A few notable records of plants are given here. There has been a lot of work on the vegetation of the Fen and the Vision area, especially by Owen Mountford, Jennie Blood-Smyth and Pete Stroh. A fuller review of the plant life will appear in the next Newsletter.

Lesser Trefoil (*Trifolium dubium*): Only the second record for Wicken Fen, when Pete Stroh recorded it in Baker's Fen (TL559695) on 20 July 2010. Gordon Barker, of the NT's biosurvey team made the 1<sup>st</sup> record when he found it on the banks of the new Mere on Tubney Fen (at TL555665) on 19/06/2008.

Marsh Dock (*Rumex palustris*): Pete Stroh found this species to be widespread and evidently increasing in abundance across Baker's Fen in 2010, in the drawdown zones of the shallow pools and ditches.

Clustered Dock (*Rumex conglomeratus*): Pete Stroh recorded this dock in Baker's Fen (TL559695) on 20 July 2010, and suggests it is under-recorded across the Vision land. Very few previous WF records.

Fen Dandelion (*Taraxacum palustre*): On 6 April 2009, Kevin Walker confirmed the continued presence of this species, scattered, in its traditional site in Little Breed Fen, Compartment 22 (TL562706).

Flat-stalked Pondweed (*Potamogeton friesii*): Two clumps of this 'RDB near threatened' species were found by Pete Stroh in Wicken Lode close to the boat shed (TL563705, 02/08/2009).

Long-stalked Pondweed (*Potamogeton praelongus*): This 'RDB near threatened' species continues to survive at its known site in Wicken Lode, close to the confluence with Monks Lode. Several plants seen here by Owen Mountford (23/06/2007) and Pete Stroh (01/08/2010).

Adder's Tongue Fern (*Ophioglossum vulgatum*): 32 fronds found in scattered along south-facing cut path, Little Breed Fen, Compartment 21 (TL559709), by Pete Stroh 01/05/2009.

Compact Rush (*Juncus conglomeratus*): A new species for the Wicken list. Found by Pete Stroh in Adventurers' Fen, Compartment 62 (TL557692) on 20 July 2010.

Round-fruited Rush (*Juncus compressus*): A rare plant for Cambridgeshire, but recorded in several locations in the drawdown zones in the Wicken Vision land in 2009-10 by Pete Stroh.



## Research & recording at Wicken

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 'vision' land, so do look at the new land as well as the classic fen.

For research projects, we would request that a clear proposal, with aim and methodology is submitted.

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. For permits please contact Peter Bircham (address on p1) including your name, contact details and explaining what you are coming to study and the methods you propose to use (eg 'Moth trapping', 'Coleoptera and Hemiptera using a sweep net'). The permit lasts one year. We can send you a map of the site to help you get around and get to new areas.

When sending in your records, we need certain key information: **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 should be emailed to [wickenfen@nationaltrust.org.uk](mailto:wickenfen@nationaltrust.org.uk) or [stuart.warrington@nationaltrust.org.uk](mailto:stuart.warrington@nationaltrust.org.uk).

**If you don't have access to email and computers, than a typed or hand-written list is fine.**

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

Examples of Spreadsheet formats. (species names can be scientific or common names, or have columns for both)

Small Copper	Compartment 22	TL562706	15/07/2009	John Smith	Basking on path	4
Gatekeeper	Sedge Fen Drove	TL556706	15/07/2009	John Smith	15 over 100 metres	15
Speckled Wood	St Edmund's Fen	TL564702	29/07/2009	J.B. Jones	A few noted <5	5
Peacock	Burwell Fen: Cmpt 208	TL563689	29/07/2009	J.B. Jones	5 around thistles	5

1634	Lackey	Sedge Fen Drove	TL556706	10/06/2010	C.C. Brown	5
1640	Drinker	Sedge Fen Drove	TL556706	10/06/2010	C.C. Brown	1

## Wicken Fen in times past



Albert Houghton (on right), a keen entomologist, on the Sedge Fen in 1894. We have a handful of records from Mr Houghton for 1891-95, mainly due to notes in articles by other entomologists who stated "Mr. Houghton took it too". The box-structure is an 'Eddystone' light which used acetylene! The moths were collected off the white sheet and swept with the net as they approached the light. Note the absence of bushes, except in the distance. The fen looks dry underfoot.

Several entomology journals from over 100 years ago are now online, such as the *Entomologist's Monthly Magazine*. Here is an interesting extract from an article in *The Entomologist's Record* of 1923.

Russell E. James, Fellow of the Entomological Society.

Old haunts re-visited – Wicken and the Deal Sandhills. *The Entomologist's Record* **35**, p.149-153 (1923)

"I was very anxious to see how Wicken Fen fared under the management of The National Trust, and I may say at once that the impression I brought away was entirely good. The fen growth appears to be well and intelligently controlled – the bushes allowed to remain and thicken near the main drove and kept clearer away back."

"Here there are large open reedy spaces in varying stages of growth where Milk Parsley flourishes and *Papilio machaon* larvae [Swallowtail butterfly] abound in numbers far exceeding anything I have know in the past."

"..... Barnes, the fen watcher, gives one the impression that he is a watcher in a real sense and would allow no nonsense. He is also adamant in refusing access to the fen to anyone not provided with the official permit of The National Trust."

*Entomologist's Monthly Magazine*, Volume **53**, p13 (1917). Notices.

The Council of The National Trust appeals to naturalists interested in the preservation and upkeep of Wicken Fen to assist to defray the expenses of the Watcher who guards the property against abuse and performs the duty of forester generally.