

# Great Kneighton

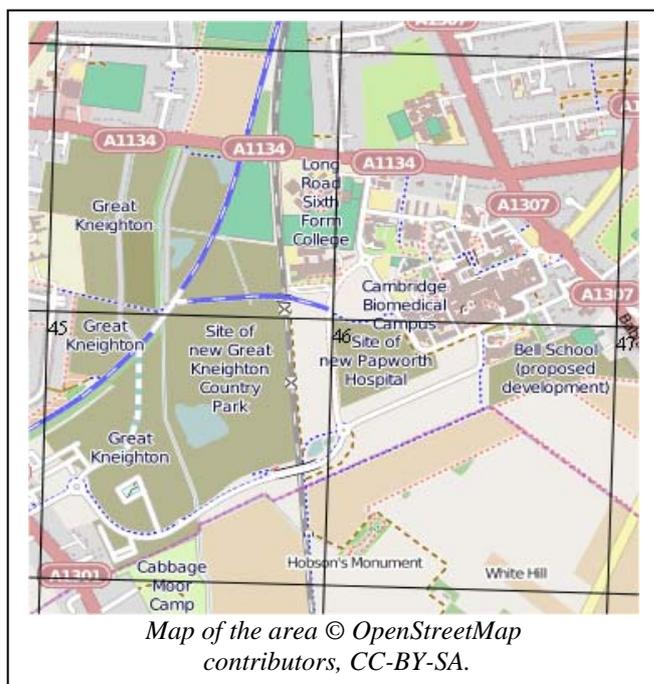
## A report on the CNHS Field Studies area of 2013

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*The Cambridge Natural History Society visited the area to the south of Cambridge, part of which is being developed as Great Kneighton, for its field studies in 2013. In addition to the new housing development, the area includes a range of rural and urban features, including Nine Wells Local Nature Reserve and Red Cross Lane Drain City Wildlife Site. This report discusses features of the site, whilst a diary giving highlights of the monthly visits is available on the Society web pages. We logged 1300 records of 523 plant species, and also recorded other phyla. Record sheets for the area are available on the Society web pages.*

Each year since 2004 the Cambridge Natural History Society (CNHS) has selected a different area of the city for extensive study over the course of a year. Areas close to the city have been chosen to allow participation by students and others without easy

access to transport. The long term plan is for a rolling programme with return visits to sites after a decade. Primarily these studies have concentrated on the vascular plants, however other phyla have been recorded, usually on an ad hoc basis. Whilst many of the study areas may be considered as lacking in interest, the detailed studies have revealed axiophytes (desirable, though not necessarily uncommon plants) and red-listed species growing in them, some of whose presence was previously unknown.

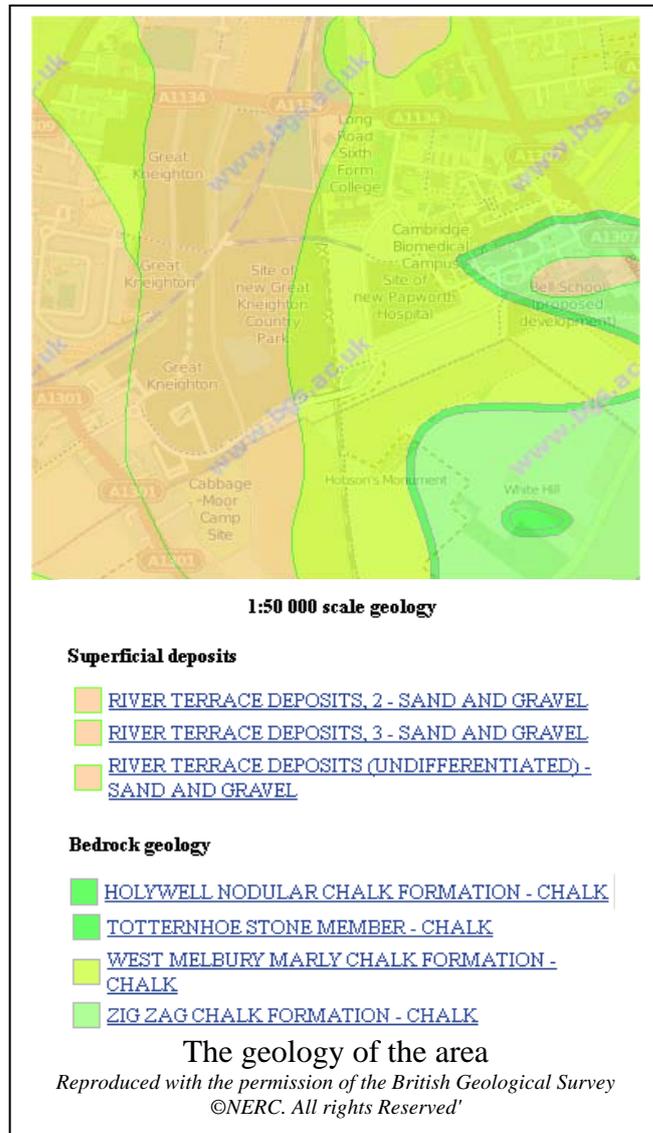


This year, we had again hoped to cover the Cambridge University North West Cambridge site prior to its development, but permission was again not forthcoming. The Great Kneighton area was one of the few remaining areas of the city that we hadn't covered, and which had an interesting mix of environments, and so a switch was made. The 2013 study therefore covered what we called Great Kneighton, though was generally recorded as "Cambridge", and which included new housing, a new country park, existing roads and housing, Addenbrookes Hospital, Hobson's Brook, Nine Wells Local Nature Reserve (LNR), Red Cross Lane Drain City Wildlife Site (CCWS) and farmland. The study area was defined to cover the four monads: TL4555, TL4655, TL4654 and TL4554.

Rainfall records from the Botanic Garden show a total rainfall of around 500mm of for the year with June the driest month and October the wettest. Early spring was the driest period, whilst the autumn was the wettest. 60% of the precipitation came in the

second half of the year. The total is a little less than the mean for the last 30 years. There was a cold snap in January, when the minimum temperature dropped to  $-10^{\circ}\text{C}$ , and March and April were cold. Snow occurred on several days between January and early April. The summer was on average warm and a distinct improvement on recent years. July was hot, with a maximum temperature of  $32^{\circ}\text{C}$ .

## Geology of the area



The full geology of the Cambridge area is described in *The Geology of the country around Cambridge* (Geological Survey of Great Britain, 1969) and can also be seen interactively in the British Geological Survey "Geology viewer". The western half of the area is mostly river terrace deposits, whilst the eastern half is mostly impermeable marly chalk and chalk. The terrace gravels were laid down up to 120,000 or so years ago, whilst the chalk formations date back to the Cretaceous nearly 100 million years ago. The base of the Totternhoe Stone gives rise to numerous springs in our part of Cambridgeshire, and today the springs are particularly marked at Nine Wells, the source of Hobson's Brook, formerly known as Vicar's Brook. The Brook traces the lowest ground in the study area, falling to 10m OD north of Long Road. Just north of the study area it was divided in the 17<sup>th</sup> century to create Hobson's Conduit, and the outfall from Nine Wells was also

canalised slightly further south than its original position. Evidence for several other springs can be seen in aerial photography. The highest ground is White Hill, reaching 37m OD in the SE corner.

### History of the area

Archaeological work was carried out by Oxford Archaeology East, as part of the preliminaries to the development of what was originally Clay Farm but is being called Great Kneighton by the developers. The archaeologists found features dating from middle Bronze Age (1500 BC) through to modern. In the Bronze Age there was an unexpected landscape of field systems, enclosures and settlements. A couple of Roman cremation burials were found with associated high status grave goods in what may have been a small cemetery or memorial garden. The area remained rural until building began in the twentieth century.



### The built environment

The Oxford to Cambridge railway (the Cambridge & Bletchley Branch of the London & North Western Railway) ran through the north-western part of the area. It was built in 1862, opening on August 1, and trains ran until the withdrawal of passenger and freight services in 1968. The track was removed in 1969 and it became noted as a County Wildlife Site, designated for the presence of Spreading Hedge Parsley *Torilis arvensis* and Perennial Flax *Linum perenne*. We did not find either plant. The Spreading Hedge Parsley was last recorded from the banks of the railway cutting further south in 1991 and the Perennial Flax in 1998. Construction of the Guided Busway began in 2007 and was completed in 2011. No buses run on this section on Sundays, so it was possible to explore the verges safely, and they do retain some of the original species, such as Wild Liquorice *Astragalus glycyphyllos*. The main railway line south from Cambridge is securely fenced and so little can be said about its wildlife!



Most of the development of the area has taken place over the last 100 years, with the entire area being rural prior to that. Development of Addenbrookes Hospital began in the 1970s when it moved from its old site near the City centre. Hills Road and Long Road sixth form colleges largely date from a similar period. The Addenbrookes complex continues to expand and the most recent addition is a new centre for the Medical Research Council. As part of the landscaping the designers specified a wildflower area and the builders used a sandy base, which appears to have originated from the Breckland. The sown mix, including Corncockle *Agrostemma githago*, Cornflower *Centaurea cyanus* and Corn Marigold *Glebionis segetum*, duly appeared, but in addition we found some unexpected delights: Common Fiddleneck *Amsinckia micrantha*, Dense Silky-bent *Apera*

*interrupta*, Drooping Brome *Anisantha tectorum*, Viper's-bugloss *Echium vulgare*, Bur Medick *Medicago minima*, Small Melilot *Melilotus indicus*, Tall Rocket *Sisymbrium altissimum*, Hare's-foot Clover *Trifolium arvense* and Bearded Fescue *Vulpia ciliata*. There was also a very sticky Common Stork's-bill *Erodium cicutarium*, which might be close to *subsp. dunense*.

A large part of the SE monad will become Great Kneighton country park. This has a lake and a network of footpaths, but seems destined to be an urban park with neatly cut grassland. This represents a lost opportunity to sustain the biodiversity of the area, as prior to harrowing and re-seeding, much of this area was developing into a good habitat for farmland birds with plenty of winter feeding. The lake was too recently established to have much in the way of aquatic and emergent vegetation, but this is likely to develop. Some Sustainable Urban Drainage (SUDS) features have been constructed as part of the development infrastructure, particularly associated with the new bridges over the railway.

We did not have access to the part of the site where building was in progress, nor could we access the railway, but most of the rest was covered. Between them Long Road and Hills Road had most of the expected halophyte plants and we also found a patch of Sea Couch *Elytrigia atherica* in a hedge near the Long Road railway bridge. The alien invader Floating Pennywort *Hydrocotyle ranunculoides* was noted from a short section of Hobson's Brook and survived attempts at removal.

### **Nine Wells Local Nature Reserve**

The LNR is a small (1.2 ha) wooded site, that is designated as a County Wildlife Site for its chalk stream. The four spring-heads of Nine Wells produce a variable flow of water at a near constant temperature of 10.2°C. Water abstraction at Babraham pumping station affects the flow rate. The springs used to have a relict ice-age population of rare freshwater macro-invertebrates until the drought of 1976 when they dried up. One of these, a flatworm *Crenobia alpina*, required cold water, but another, a cased caddis fly *Agapetus fuscipes*, could not tolerate water colder than 5°C. By the early 21<sup>st</sup> century the site was becoming derelict and so remedial work was put in place to restore the spring-heads. Regular management work now takes place to keep the stream banks clear, and to enhance some of the glades. The site was not always wooded, and tree ring counts suggest that the Beech trees were planted in the 1960s. Some wildflower sowing has taken place within the LNR, but one native speciality is Deadly Nightshade *Atropa belladonna*. There is a vision to enlarge the LNR and perhaps to rejuvenate some of the nearby long lost springs in order to take pressure off the Reserve, which may be swamped by the growing population of the area.

### **Red Cross Lane Drain CCWS**

This small CCWS is a damp drain about 150m long and 6m wide, designated for its neutral grassland. The eastern bank is steep, with the wettest section of the drain bottom beneath it, with the western bank more gentle. Occasional management work takes place to maintain the habitat. It was the only place where we found Harebell *Campanula rotundifolia* (on top of the eastern bank) and Common spotted Orchid *Dactylorhiza fuchsii*. Clustered Bellflower *Campanula glomerata* has been recorded there in the past.

### Triangle north of Long Road CCWS

This site is identified as a Local Ecological Mitigation (LEM) area as compensation for the construction of the Guided Busway. The southern part of the site is a block of woodland, whilst the northern part is mostly old clinker that has been sown with a wildflower mix. The area is isolated from easy public access by Long Road, the Guided Busway and the railway. It is designated as a CCWS as an area of calcareous and neutral grassland containing a population of the Nationally Scarce plant Twiggy Mullein *Verbascum virgatum*. The Nationally Scarce designation is an old assessment of what is now regarded as an alien and we encountered it in several parts of the NW monad. Surprisingly there is no mention of Basil Thyme *Clinopodium acinos*, which was recorded there in 2005 and is red-listed as Vulnerable. We did not record it in 2013, though we did see Common calamint *Clinopodium ascendens*.

### Notable plant species

As with Trumpington Meadows, sowing of wildflower mix has obscured the origin of some of the notable species that might have been in the area naturally. In addition to the species already mentioned, we found Sneezewort *Achillea ptarmica* in the southern LEM. It did not appear to be included as part of the introductions, and although it has never previously been recorded from this area, it is known from Sawston Moor some 7km to the south-east. A few plants appeared as casuals on land that was destined to be built upon. A few patches of Bristle Club-rush *Isolepis setacea* appeared on damp gravel in the west of the area, whilst a single plant of Slender Rush *Juncus tenuis* was found not far from the lake. Dittander *Lepidium latifolium* is nationally scarce, however it is spreading in the study area, having first been noted in 1938 near the Long Road railway bridge, and is now present in two monads. Historically Narrow-leaved Pepperwort *Lepidium ruderale* was scarce in the county, but in recent years has become widespread along road verges, in this case Hills Road. Although not seen during the study year, Jonathan Shanklin recorded Prickly Poppy *Papaver argemone* in an arable margin near the Red Cross Drain the previous year. The Nationally Scarce Annual Beard-grass *Polypogon monspeliensis* was seen at a couple of sites in the SW monad, with the largest population at the edge of one of the SUDS. It seems to be becoming more common in vc29, having been first recorded in 1975 and is particularly frequent along the Guided Busway in the west of the County. We noted Lesser Meadow-rue *Thalictrum minus* on the bank of the old ditch running parallel to the new cycle path and also in Holbrook Road. Mulleins *Verbascum spp* are common along the Guided Busway and railway, with at least six species and hybrids being noted.

### Bryophytes

Most records were made during a joint meeting with the Cambridgeshire group of the British Bryological Society, which took place in November, though Jonathan Shanklin had noted liverworts throughout the year. After diligent searching he found six liverwort species, with



Collared Earthstars in the rain

four of these being thallose. Surprisingly, he did not find the two most common Cambridgeshire liverworts, Forked Veilwort *Metzgeria furcata* and Dilated Scalewort *Frullania dilatata*. Mark Hill provided an account of the meeting, which produced more than enough variety for the beginners:

For our joint meeting with the Cambridge Natural History Society as part of their field studies in the area of the Great Kneighton development, a party of 8 (Mick Burton, Monica Frisch, Jo Garrad, Mark Hill, Duncan Mackay, David Seilly, Jonathan Shanklin, Emma Willson) met in the grounds of Addenbrooke's Hospital TL4655. *Brachythecium mildeanum* ('car park moss') grew by the road at our meeting place and there was a little *Rhynchostegium megapolitanum* on a bank nearby. Moving on towards Nine Wells TL4654, Mick found *Fissidens incurvus* by a ditch and Mark spotted *Didymodon nicholsonii* on brickwork of a culvert. Patches of newly-planted trees at the edge of a field produced *Dicranella varia* c.fr., *Microbryum davallianum* and good quantities of *Tortula acaulon* but there were no tuberous *Bryum* species.

Vertical banks by the springs at Nine Wells were covered by large mats of *Leiocolea turbinata* and *Pellia endiviifolia* c.fr. (capsules well formed but setae not extended). There were a few epiphytes on tree trunks, including *Homalothecium sericeum*, *Orthotrichum affine*, *O. diaphanum* and *Syntrichia montana*. We looked for but did not refind *Didymodon umbrosus*, which our group had seen at Nine Wells in 1984.

Emerging from the wood, we entered monad TL4554 and saw mats of *Platyhypnidium riparioides* on brickwork where the conduit goes under the railway. By a *Typha*-filled pond nearby, there was copious *Didymodon topiaceus* c.fr. and a little *Marchantia polymorpha* subsp. *ruderalis*.

We walked along an avenue of plane trees whose bark had been badly damaged by gnawing mammals. By the MRC Lab of Molecular Biology TL4555, a mound was surfaced with sandy soil brought from Breckland. This added *Tortula protobryoides* and *T. truncata* to our list. Finally, we went back into our original monad on the Addenbrooke's site. *Rhynchostegium megapolitanum* was present in several additional patches and there was a moderate amount of *Ceratodon purpureus* even though the site seemed to be calcareous.



Pipe Club

By the end of the day we had found 45 species. The epiphytes were healthy but unremarkable and the only tuberous *Bryum* was *B. ruderale*.

### Fungi

A few fungi were noted as casual records during the course of the year, but a fungal foray held in October provided the majority of records, though rain severely affected the excursion. The most spectacular find on the day was a colony of Collared Earthstar *Geastrum triplex* in the woodland of the Long Road railway triangle

CCWS. Earlier in the month a chance find was Pipe Club *Macrotyphula fistulosa* growing through clay lumps at the edge of a field.

### **Lichens**

We failed to recruit a lichen specialist and so only made a few records of common species such as the ubiquitous Yellow Scales *Xanthoria parietina*.

### **Invertebrates**

Despite there being plenty of water bodies in the area we did not note many dragonflies. It was however a good year for butterflies and we recorded 11 species, with Clouded Yellow *Colias croceus* seen in August and September. Nine Wells LNR occasionally has plagues of Spindle Ermine *Yponomeuta irrorella*, but while caterpillars were seen in the summer they did not develop to plague proportions, unlike the Bird-cherry Ermine *Yponomeuta evonymella* on the trees on Jesus Green. The Spindle *Euonymus europaeus* at the LNR proved host to many Kidney-spot Ladybirds *Chilocorus renipustulatus* on the September visit, with 19 found crawling over the leaves at the edge of an open glade. The identity of a Black Poplar *Populus nigra* was proved by the presence of the spiral gall caused by *Pemphigus spyrothecae* and we noted several other galls on various plants. The Tree Bumblebee *Bombus hypnorum* was first recorded in Britain in 2001, but already it is common in Cambridge and we saw it in the study area.

### **Vertebrates**

We occasionally had birders with us, and noted 41 bird species. Magpie *Pica pica* was the most frequently recorded, though not necessarily the most frequent species present. Once unusual, but now a frequent visitor, Little Egret *Egretta garzetta* was seen on a couple of occasions, and the birders noted a wide range of species on the new lake in the country park.

Perhaps we weren't looking hard enough, but we failed to record many other vertebrates. Rabbits *Oryctolagus cuniculus* were seen on most visits, but otherwise we only recorded Mole *Talpa europaea* and Grey Squirrel *Sciurus carolinensis*.

### **Conclusion**

Sowing of wild-flower mixes has obscured the original distribution pattern of many species, however several plants that are on the draft county rare plant list are present as natives and others have appeared as accidental introductions. Altogether we made 1300 records of 523 vascular plant species or subspecies and records of around 180 other species. A diary style record of the visits and the full species lists are on the Society web page.

The 2014 survey returns to the Coton Footpath and BSBI local change tetrad TL45J where the CNHS started its programme of field studies in 2002. Although the present CNHS group tends to concentrate on plants, we make records of other organisms too and would welcome beginners and experts with other interests. Do come and join in. Dates for the monthly surveys, and flora lists for many of the wildlife sites near Cambridge are on the Society web page.

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## References

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