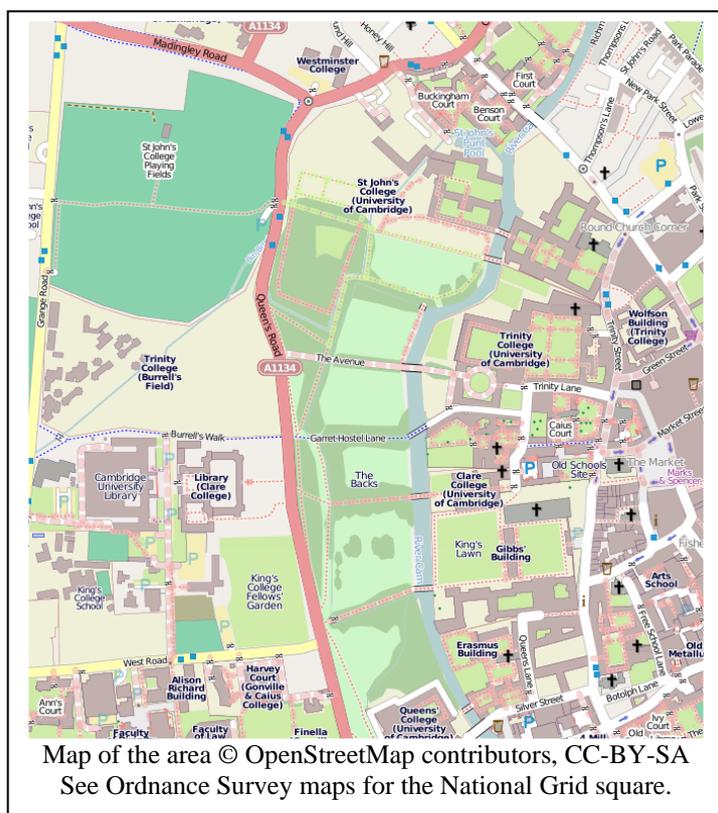


# The Backs

## A report on the CNHS Field Studies area of 2011

Jonathan Shanklin

*The Cambridge Natural History Society turned to the Cambridge Backs for its field studies area in 2011. This report follows a different pattern to those for previous years in that features are discussed individually, rather than presenting highlights in a diary for the year, although this is retained on the Society web pages. We logged over 550 plant species, and also recorded some 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 intention is to have 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

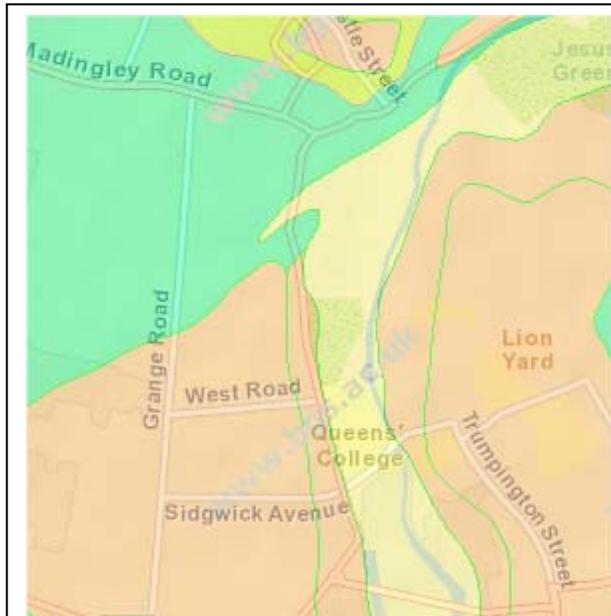
(desirable, though not necessarily uncommon plants) and red-listed species growing in them, some of whose presence was previously unknown.

This year's study covered the Cambridge Backs, which for the purpose of the study was considered to encompass all of the monad TL4458. The monad includes a wide variety of habitats: busy roads, the general urban environment, older colleges and churches, the river Cam, Bin Brook and associated ditches, "wilderness areas" and playing fields. It is thanks to this variety of sites that the area has a high biodiversity as measured by the number of vascular plant species recorded.

It was an exceptionally dry year, with only 339mm of precipitation recorded by the end of November, compared to the normal of around 510mm (the mean annual total is 556mm for the period 1961 - 2010). Apart from an occasional shower, the outings

were not troubled by rain, though the dry conditions certainly affected the species that could be seen.

### Geology of the area



The surface geology of the area

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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 river Cam runs at 6m OD and the highest points are Pease Hill in the east (10m), the north-west corner of the monad (12m) and the south-west corner (10m). The river runs through a relatively narrow alluvial plain a few hundred metres wide, with terrace gravels on either side. Its channel has been straightened, with the original meanders now forming ditches. The first terrace gravels parallel the river, and are generally a few metres thick, though thicker lenses are

present. They were probably laid down some 20,000 years ago during the Arctic conditions of the last glaciation. The second terrace deposits are more extensive, but again only a few metres thick and cover most of the remaining area. These were laid down in warmer conditions towards the end of the last interglacial, and include mollusc shells and bones of *Hippopotamus*, *Cervus* and *Rhinoceros*. In the north-west corner, the Gault is at the surface, though fortunately for walkers this sticky clay is covered by playing fields. The deposit, around 40m thick was laid down in the Cretaceous, some 100 million years ago, when the area was covered with a relatively shallow coastal sea.



King's Chapel and “The Paddock”

The gravels have a subtly different flora to the alluvial plain, though this may be through introductions as much as through nature. The lawn below Memorial Court of Clare College, which is on the first terrace gravels, has a good range of plants, including *Luzula campestris* and *Galium verum*. The less developed “wilderness areas” of the Backs have quite different species such as Ramsons

*Allium ursinum*, Goldilocks Buttercup *Ranunculus auricomus* and Pignut *Conopodium majus*. All may not be quite as it seems, as Babington suggested that colleges brought in turf, complete with flora, from the chalk downs outside the City. In addition, as Preston & Sheail have noted (2007), there was much dumping of rubbish on the “alluvial plain”.

### **History of the area**

Magdalene Bridge crosses the river near the site of the Grantanbrycge (ca 800 AD) which gave Cambridge its name. The Anglo-Saxons began St Benet’s church, and its tower dates to 1033. The University came to Cambridge in 1209, and the growth of the Colleges and University since then have continuously changed the area.

David Loggan’s 1688 map of Cambridge shows the Backs between Queen’s Road and the river Cam in almost the same layout as they are today. East of the river there has been infill of several areas that are shown on his map as wooded or grassed. The map also shows the complex ditch system of the Backs, with causeways linking the colleges with higher ground to the east. Ordnance Survey maps show that the area west of Queen’s Road still included some open fields until towards the middle of the twentieth century, when college and university expansion changed their character. More and more of the area is being developed, but occasionally the development process allows ruderal species to flower for a brief period.

### **The Colleges**

The grounds of each college have their own character, and this is sculpted further by the direction of their gardening staff. Over centuries they have influenced the flora, introducing plants which have become naturalised, especially the spring bulbs for which the Backs are renowned. John Raven noted in the early 1950s that Slender Trefoil *Trifolium micranthum* was abundant in almost every college lawn in Cambridge (pers. comm. P.H. Oswald) and we specifically noted it at Clare and St John’s.

Clare College has only small patches of unmanaged terrain, but despite this has a good diversity of species. Indeed on our first visit we spent over half an hour just looking at the lawn by the College gates! Notable are some of the old walls, with ferns in shaded parts, and a wall top flora on the boundary wall with King’s, including the only county record for *Stranvaesia davidiana*. The margins of the lawn in the Fellows Garden are a haven for spring flowers, with Field Wood-rush *Luzula campestris* present in this and other College lawns. Memorial Court sprang a number of surprises, with the first visit revealing Hare’s-foot Clover *Trifolium arvense* and Early Forget-me-not *Myosotis ramosissima* growing in a sandy bed running along the drive to the north of the lawn. On the second we found Rough Clover *Trifolium scabrum*, a rare Cambridgeshire plant, growing in the front lawn. It seems most likely that these were introduced in soil used to make good the lawns after building work a few years ago. Short-fruited Willowherb *Epilobium obscurum* growing by the side of Memorial Court was only the second recent record from the city.

The grounds of King’s are perhaps the most managed, but despite this there are other species than grasses in the hallowed turf. King’s Scholar’s Piece on the west side of the river has cattle grazing in the summer, and is the only remaining area of the Backs water-meadows with “traditional” management. A few species were seen here and

nowhere else, notably Agrimony *Agrimonia eupatoria* and the hybrid Dock *Rumex x pratensis*.

Queens has a small “natural” area known as The Grove, where magnificent Dutch Elms *Ulmus x hollandica* grow, and which have been, perhaps surprisingly, resistant to Dutch Elm disease. The grounds to the west of the river have good displays of naturalised spring bulbs, with several different species of Glory-of-the-snow *Chionodoxa* giving the botanists much to debate. The walls bounding Silver Street have a good flora, with Rue-leaved Saxifrage *Saxifraga tridactylites* thriving.



The Trinity Meadow

As one of the largest colleges Trinity has plenty of space for wild areas, and in particular maintains an old meadow in the Fellows’ Garden, which is a City Wildlife Site. It is cut once a year with removal of arisings, and has a neutral to calcareous sward. Indicator species present include Quaking-grass *Briza media*, Field Scabious *Knautia arvensis*, Rough Hawkbit *Leontodon hispidus*, Hoary Plantain

*Plantago media*, Goldilocks Buttercup and Salad Burnet *Sanguisorba minor* subsp. *minor*. For most of the summer, building work was taking place in Great Court, so we did not see the aliens Common Purslane *Portula oleracea* and Small Love-grass *Eragrostis minor* which are known from there.

The other big college, St John’s, also keeps a wild area (The Wilderness) in its Fellows’ Garden, and this has a long history of botanical recording. Both Henslow and Babington noted that Meadow Saxifrage *Saxifraga granulata* grew here, and we were delighted to find it still present, as was Pignut, reported from here by Relhan in 1785, though Babington suggested that this was introduced with the turf. We did not re-find Moschatel *Adoxa moschatellina*, known here since 1860, though it was seen in 1991. The western boundary wall has long supported Tower Cress *Pseudoturritis turrita* and Philip Oswald (2011) gives full details. The College playing fields cover a large area, but we made an unexpected find on their margins. When called to identify a small trefoil, Jonathan Shanklin spotted a plant of Wall Bedstraw *Galium parisiense* on rough ground nearby. Surprisingly this was not the first record from the monad as it had been found by the School of Music in West Road in the early 1980s.

### The Churches

The churchyards of St Benet’s, St Botolph’s, St Clement’s, St Edward’s, Great St Mary’s, St Mary the Less, and Holy Sepulchre (the Round Church) all lie within the area. That of Great St Mary’s is well trampled by tourists, but is not diligently gardened and hence casuals such as Thorn-apple *Datura stramonium* (seen in 2006) and Cockspur *Echinochloa crus-galli* appear from time to time. Yellow-flowered

Strawberry *Potentilla (Duchesnea) indica* is scattered in the churchyard, and this plant can also be found in King's and St John's. St Benet's is well tended by the Corpus Christi College gardeners, but Lady's Bedstraw *Galium verum* still persists in the lawn, and the churchyard wall supports several species of fern. Tussock Bellflower *Campanula carpatica* persists on a chest tomb in the churchyard, where it was first noted in 2006. St Botolph's churchyard is sadly normally closed to visitors and Holy Sepulchre is now a tourist centre. St Clement's has "wild" areas to it and provided several initial records on the traditional New Year's Day outing. St Mary the Less lies on the boundary of the area, and is a City Wildlife Site because the Nationally Scarce moss *Rhynchostegiella curviseta* is recorded from the site. A notable feature of the churchyard is the lawn of Mind-your-own-business *Soleirolia soleirolii*, where it has been known since at least 1946.

### The river, streams and ditches

The major feature is the River Cam. There is heavy traffic on it, though of a quite different nature to that of a century ago, particularly in the summer. Punts abound, and the river bed is kept relatively clear of "weed", though some can be found, for example Unbranched Bur-reed *Sparganium emersum*. The bounding walls do however provide something of a haven, and on our punt trip we noted, amongst others growing on them: Pellitory-of-the-wall *Parietaria judaica*, Ivy-leaved Toadflax *Cymbalaria muralis*, Gypsywort *Lycopus europaeus* and Skullcap *Scutellaria galericulata*, the last showing its striking blue flowers. The most interesting wall plant was a yellow flowered Clematis *Clematis tangutica* growing on stonework by St John's. The Bin Brook, although prone to flash flooding, has a much cleaner flow and its seclusion provides something of a haven. The section along the Trinity Paddocks used to support Water Vole *Arvicola terrestris*, but during our visits we didn't make any definite sightings. By contrast the ditches appear to be in poor condition, often over shaded by neglected trees, and with anoxic conditions ensuring little biota. The best ditch section is that along the King's Backs.

### The urban environment



Identifying fungi on Trinity meadow

Although a good part of the area consists of buildings, pavements and roads, plants find places to grow. Ferns find walls a good substitute for cliffs, and drain gratings often provide a damp environment. Polypody *Polypodium vulgare sensu lato* grows by a drain-pipe in Free School Lane, and also down a drain behind the University Library. Ribbon Fern *Pteris multifida* grows in a grating by Michaelhouse.

Lady Fern *Athyrium filix-femina* was found by a drain of the Real Tennis Court off Burrell's Walk, not that far from where it had been seen on the brickwork of the

Garret Hostel Lane causeway in 1961. Alan Leslie suggests that this may be the only self-sown plant in the city. Also found in Burrell's Walk was a single plant of Wood Melick *Melica uniflora*, with no obvious nearby planting. An ornamental bed covered with ivy on the Sidgwick Site was filled with spikes of Ivy Broomrape *Orobanche hederæ*. Salted road verges showed several of the increasingly widespread halophytes, Buck's-horn Plantain *Plantago coronopus*, Danish Scurvy-grass *Cochleria danica* and Lesser Sea-spurrey *Spergularia marina*, but we didn't see Reflexed Saltmarsh-grass *Puccinella distans*, possibly because the Council sprayed the most likely verge on which it might be found. Another recent invader is Early Meadow-grass *Poa infirma*, which is now abundant on the Backs. It appears to have expanded its range considerably from its native habitat of short turf near the sea in the south-west, but it is not clear if this is a response to climate, salted roads or better searching. In the case of Cambridge the last explanation appears unlikely and the first record was in 2001.

### History of plant species

There is a long history of botanical (and other) recording in the area, with John Ray possibly recording Greater Water-parsnip *Sium latifolium* and Grass-wrack Pondweed *Potamogeton compressus* in 1660, though these plants were not seen during the present survey. Ray made some specific comments on several other species, only a few of which we recorded:

- The small wild red Blite most likely *Chenopodium polyspermum*. "In various localities, as in some Osier holts by the river: also in a ditch on the backside of S. Johns Colledge in a close on the north of the back-gate."
- Common Calamint *Calamintha ascendens*. "On a bank near the hedge in a close by the high way side adjoining to S. Johns Colledge walks." We found it in Clare, though perhaps this was a garden cultivar.
- Great Bindweed *Calystegia sepium*. "In many hedges, as in the privet hedge in the fellows garden at Trinity Colledge."
- Common Polypody *Polypodium vulgare sensu lato*. "On Trinity-hall wall by the lanes-side which leads to Garret-hostle-bridge." Although it was lost from here in 1949, we did find it growing in a couple of other locations: on a wall in Free School Lane, and down a drain by the University Library.
- White Poplar tree *Populus alba* or *P. x canescens*. "One tree in the hedge of S<sup>t</sup> Johns Colledge bowling-green." This is the wilderness area of the Fellows Garden.
- Horse-Radish *Armoracia rusticana*. "It was found in Magdalen Colledge close, but since hath been most what [*sic*] dug up and carried away." We didn't find it either.
- Marsh or Water Elder *Viburnum opulus*. "By the ditch of one of the closes on the back-side of Clare-hall."
- Small grassie Saxifrage" *Sagina apetala* or *S. procumbens*. "If any one desires certainly to know what plant we mean, he may be sure to find it among the stones in the stone-walk in the Fellows garden at Trinity Colledge."

Other well known botanists of the past, such as Babington, Henslow and Newbould must have explored the area. There are localised entries in the BSBI database; however it seems possible that some are in error as they disagree with the corresponding entries in the Cambridgeshire Flora. One example clearly confuses Kings Hedges with King's hedges. Some records for rare species such as Flat-sedge

*Blysmus compressus*, Maiden Pink *Dianthus deltoides*, Corn buttercup *Ranunculus arvensis* and Shepherd's-needle *Scandix pecten-veneris* are listed for the area in the BSBI database but do not appear in the Cambridgeshire Flora. Most of these records are from the nineteenth century, though some such as Red Hemp-nettle *Galeopsis angustifolia* are as recent as the 1940s. Reports in *Nature in Cambridge* mention several axiophytes that we failed to see, such as Yellow Loosestrife *Lysimachia vulgaris* and Common Meadow-rue *Thalictrum flavum* in Trinity Fellows' Garden, however it would be premature to declare these as no longer present in the area.

### Birds

We rarely had birders with us, but did note 22 species. The most memorable sighting was a close up view of a Goldcrest *Regulus regulus* in a hedge by the University Library.

### Bryophytes



Hunting for mosses in St John's Wilderness

Most records were made during a joint meeting with the Cambridgeshire group of the British Bryological Society, which took place in November. This meeting focussed on the grounds of Clare, St John's and Trinity and recorded nearly 60 moss species. Notable were three species scarce for Cambridgeshire:

*Leptobarbula berica* (5<sup>th</sup> v.c. record),  
*Rhynchostegiella curviseta* (6<sup>th</sup> v.c. record) and  
*Rhynchostegiella litorea*

(3<sup>rd</sup> v.c. record). Quite surprisingly given the general lack of woodland habitat, nine hepatic species were recorded, putting the monad high in the county list of liverwort diversity. Common Liverwort *Marchantia polymorpha subsp. ruderalis* was ubiquitous in shaded areas amongst college cobbles, paving slabs and damp ground. Great Scented Liverwort *Conocephalum conicum* was found growing in a large band just above the water level along the brickwork of Garret Hostel Lane, with scattered specimens elsewhere along the drainage ditches.

### Fungi

A few fungi were recorded as casual records during the course of the year, but the foray during the main fungal season suffered the effects of an extremely dry October, when only 17mm of rain fell. Perhaps most notable was the apparent abundance of mildew, with eight different plant species recorded as supporting it.

### Lichens

F H Brightman described the Lichens of Cambridge Walls in 1965, and the Cambridge of that period suffered heavily from the effects of coal fires. With the passing of the Clean Air Act, the atmosphere has changed and acid rain is a thing of

the past. A visit to the same area by the Cambridgeshire Lichen Group in February revealed a considerably changed lichen flora. Mark Powell noted 'Silver Street bridge which was described by Brightman thus: "The pioneer species have a crustose habit... *Verrucaria viridula* (brownish green, clear green when wet) is a good example of this; it is, for instance, the most abundant species on Silver Street bridge. Here, together with the only other two species present – *V. nigrescens* (brownish black) and *Candelariella vitellina* (orange yellow) – it covers rather less than fifty percent of the surface of the stone." Nowadays the lichen cover is closer to ninety percent and involves at least twenty three species. *Verrucaria viridula* is reduced to three small individuals, *V. nigrescens* is abundant while *Candelariella vitellina* is no longer present. The small churchyard at St Benet's gave a surprisingly large list, approaching 40 species. A survey of Lime Trees *Tilia* sp in St John's playing fields as part of an Opal air quality survey showed a preponderance of nitrogen-loving lichens such as *Physicia* and *Xanthoria*, with some intermediate species such as *Melanelixia*.

### **Invertebrates**

We investigated several habitats during Opal surveys. Perhaps the most surprising discovery was the large number of spiders inhabiting a three metre stretch of hedge on the boundary of St John's playing field, with woodlice being the second most abundant group. Another survey looked at the relative number of species found in different types of habitat, and we found far more on the soft ground near Queen's Green than we did on the built environment of the Sidgwick Site. We did spot one of their "Species Quest" bugs – Devil's Coach-horse *Ocyrops olens*.

### **Vertebrates**

Despite being close to the city centre, Badgers *Meles meles* inhabit Trinity Fellows Garden and we also saw a Hare *Lepus capensis*. Bin Brook may still support Water Vole and a fascinating spectacle was seeing a Water Shrew *Neomys fodiens* paddling in circles for several minutes in a quiet backwater. Amphibians (Frog *Rana temporaria*) and reptiles (Grass Snake *Natrix natrix*) are present.

### **Conclusion**

Despite the urban location, with often highly formal gardens, there is a surprising amount of natural green space in the area, and this still supports several scarce species. Altogether we made 1000 records of over 550 vascular plant species and records of around 200 other species. A diary style record of the visits is on the Society web page.

The 2012 survey is covering the area destined to become the Cambridge University North-West campus. 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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