

CHURCHYARD LICHEN SURVEY  
**BERKHAMSTED- RECTORY LANE CEMETERY**  
ST PETER'S DETACHED CHURCHYARD

**Grid Reference:** SP 994 075

**Date of survey:** 14/12/2013

**Vice County:** 20

**Surveyed by:**

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### **Introduction**

Lichens receive nearly all of their requirements from the atmosphere and nutrients dissolved in rainwater rather than the substrate on which they are found. However the texture and chemistry of e.g. rock or bark and the local environment has a strong influence on the species which can colonise and many have very specific and subtle requirements. Churchyards and cemeteries are rich in species because of their variety of features, small-scale habitats and microclimates. However variations in air quality have a profound affect on lichens.

### **The cemetery and its lichens**

Rectory Lane Cemetery, the detached churchyard of St Peter's, Great Berkhamsted, is located in the centre of the town on a north-east facing slope with an altitude ranging from 115 to just over 140 metres. Seventy lichen taxa were recorded during this survey ('Taxa' includes species, subspecies and different forms). This is a rather modest number for a churchyard, but considering that there is no church building present, it still represents a good range of species and illustrates how such places can be important for biodiversity. Two-thirds of the lichens were saxicolous i.e. they were found on the natural stone of the memorials – among them well developed examples of *Clauzadea monticola* and *Porpidia tuberculosa* - or on the masonry of the boundary wall and concrete. The remaining third were corticolous - recorded from the bark of the small trees which are a feature of the site.

At one time the local environment must have been significantly influenced from the release of sulphur dioxide from the burning of coal as a fuel. Sulphur dioxide acidifies rainwater and has a harmful effect on all but the most resistant lichens. The position of the site may have magnified the effect; damp cold air pooling in the valley. There is still a legacy of this with several species normally typical of churchyard memorials occurring at a low frequency. Crustose lichens sitting flush against the substrate have some protection particularly if it is limestone which has a buffering effect, but the ability of lichens to colonise and communities to develop will be affected. Corticolous communities are generally the most responsive. Those on the cemetery trees indicate that atmospheric quality is now more favourable to lichens. It was of note that *Lecanora conizaeoides* which is one of the few lichens which respond positively to high levels of sulphur dioxide and was once ubiquitous on bark in Hertfordshire was not recorded, while lichens such as *Parmotrema perlatum* and *Ramalina fastigiata* occurred on twigs of the small trees mirroring the recolonisation of the county by these species.

### **Species distribution**

The commonest lichens on limestone memorials were crustose species, particularly *Verrucaria nigrescens* f. *tectorum* (this a form of a common dark crustose lichen, but with a gingery surface created by numerous brown, small finger like outgrowths) and *Protoblastenia rupestris*. These are perhaps more suited to slightly acidified surfaces than *Caloplaca flavescens*, *Caloplaca teicholyta* and *Candelariella media* which, though characteristic of old calcareous stonework, were rather uncommon here. Marble headstones had mostly *Caloplaca dichroa*, *Lecanora albescens* and *Lecanora dispersa* which represent an earlier successional phase so colonise more readily.

There is an extensive encrustation of *Clauzadea monticola* around the elaborate, slightly leaning memorial in the central-eastern part of the churchyard. This species is neither common nor rare and it is good to see such well developed material. *Porpidia tuberculosa*, though not as common here as it is at many other graveyard sites, is well-developed and extensive on a flat sandstone slab. This occurrence is particularly interesting as its fruiting bodies are present and these are rarely produced in this region. Other species typical of sandstone such as *Porpidia soledizodes* and *Psilolechia lucida* are also present, the latter typically growing in the recesses of the inscription (figure 3). A few lichens more closely associated with hard crystalline granite faces such as *Rhizocarpon reductum* occur in small amounts on the memorials in the upper part of the cemetery

The lichen-forming fungi have algae as the photosynthetic partner in most of the species present, the exceptions being two 'jelly lichens' which have a cyanobacteria: *Collema crispum* on the upper surface of the table tomb (figure 2) and *Leptogium turgidum* among chippings on a concrete base.

The twigs of the cemetery trees generally have a community typical of nutrient enriched bark, this is typical of the general increasing deposition of nitrogen compounds, but with the Yew trees this may also be because they are frequented by birds feeding on the berries.

### Conservation and management

Except where the data on the national database is deficient all of the species are classified as being of 'Least Concern' (LS) (table 1). Some are additionally classified as 'Nationally Scarce' (NS). This apparent contradiction is an artefact of under-recording for the following reasons:

- a) They have only recently been recognised as distinct species e.g. *Caloplaca dichroa* and *Opegrapha viridipruinosa*, the latter described as new to science as recently as 2011
- b) They are easily overlooked in the field and difficult to collect and identify with certainty as is the case with *Catillaria atomarioides*
- c) The species is recorded on rarely in its natural habitat and has only recently been recognised as occurring widely in churchyards. A limestone species, *Lecania inundata* is such an example. At Rectory Lane Cemetery it was prolific on the wall where there was a calcareous influence from mortar.

*Verrucaria ochrostoma* is 'Data Deficient' (DD) and 'Nationally Rare' (NR) as there are currently very few records on the national database. The work in Hertfordshire has demonstrated this to be widespread in churchyards.

Lichens are best left to do their own thing. The main threat to them is headstones becoming swamped by ivy or evergreen shrubs. Scrub and ivy clearance has minimised the problem at the cemetery, though some affected headstones will take time to develop a lichen flora. As many species are distributed thinly across the site it is difficult to identify any particular feature/s as a lichen hotspot, though the elaborate memorial just below the terraced bank in the west-central area and the table tomb and nearby headstones in the north-eastern area are quite good as well as some of the trees with spreading canopies - the young oak and elms.

### Conclusion

Rectory Lane Cemetery supports a good range of lichen species but lacks rarities. This situation is to be expected considering that ancient features are absent - none of the surfaces attractive to lichens have been in existence at the site for more than about 160 years at most - and the site will have suffered several decades of significant acidic pollution during the Twentieth Century. The current management regime is broadly favourable. The Cemetery is unlikely to acquire rare lichens but future surveys will undoubtedly record significant changes. Atmospheric pollution regimes will continue to change, hopefully for the better, and the lichen communities (especially those on tree bark) will respond with appearance of new colonists. Our understanding of lichen species, even common lowland ones, is incomplete and the next couple of decades will see many advances resulting from genetic fingerprinting techniques. *Opegrapha viridipruinosa*, present on an ash tree trunk in the upper portion of the cemetery, was described as new to science as recently as 2011; previous to that date it would have been shoehorned into the name *Opegrapha varia*. Other semi-cryptic species await discovery. An extensive colony of another member of this genus is present on the boundary wall but this group of lichens requires microscopic examination to confirm identity. The small scraping taken from the boundary wall was insufficient to be certain but this appears to be an interesting occurrence of *O. ochrocheila* growing on brickwork (this species usually occurs on tree bark) and requires confirmation.

Studies such as this not only further our knowledge of lichens themselves, they also provide useful information on the environment in which they are found.

**Table 1: Species list**

BLS No.	Lichen Taxa	Status	Substrate	Small scale habitat
0212	<i>Amandinea punctata</i>	LC	Cort	Trunk of small Oak
0069	<i>Arthonia radiata</i>	LC	Cort	Ash Twig
#N/A	<i>Bacidia</i> cf. <i>caligans</i>	#N/A	Sax	Concrete paving
#N/A	<i>Bacidia</i> sp.	#N/A	Sax	Sandstone memorial
1628	<i>Botryolepraria lesdainii</i>	LC	Sax	Mortar course of boundary wall
0200	<i>Buellia aethalea</i>	LC	Sax	Granite headstone
0242	<i>Caloplaca cerinella</i>	LC	Cort	Elm twig
0263	<i>Caloplaca chlorina</i>	LC	Sax	Base of granite cross
0249	<i>Caloplaca crenulatella</i>	LC	Sax	Concrete within kerbed memorial
2443	<i>Caloplaca dichroa</i>	LC NS	Sax	Marble headstone
0259	<i>Caloplaca flavescens</i>	LC	Sax	Limestone headstone and table top
2315	<i>Caloplaca flavocitrina</i>	LC	Sax	Brickwork of boundary wall
2527	<i>Caloplaca holocarpa</i> s. str.	LC	Sax	Base of granite cross
2607	<i>Caloplaca limonia</i>	LC	Sax	Vertical face of limestone headstone
2461	<i>Caloplaca oasis</i>	LC	Sax	Marble headstone
0281	<i>Caloplaca teicholyta</i>	LC	Sax	Limestone memorial
0291	<i>Candelariella aurella</i> f. <i>aurella</i>	LC	Sax	Limestone headstone

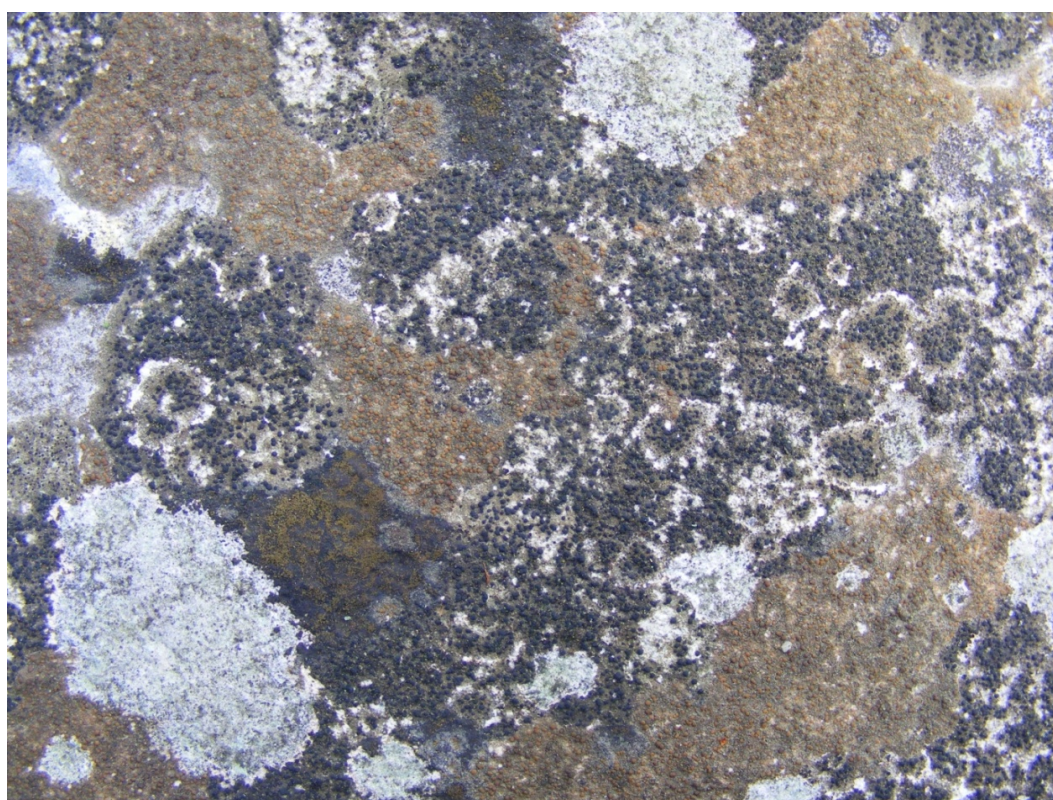
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0296	<i>Candelariella medians</i> f. <i>medians</i>	LC	Sax	Limestone headstone
0297	<i>Candelariella reflexa</i>	LC	Cort	Sycamore branch
0298	<i>Candelariella vitellina</i> f. <i>vitellina</i>	LC	Sax	Brickwork of boundary wall
1609	<i>Catillaria atomarioides</i>	LC NS	Sax	Granite memorial
0306	<i>Catillaria chalybeia</i> var. <i>chalybeia</i>	LC	Sax	Brickwork of boundary wall
0751	<i>Clauzadea monticola</i>	LC	Sax	Limestone memorial
0440	<i>Collema crispum</i> var. <i>crispum</i>	LC	Sax	Limestone tabletop tomb
0511	<i>Evernia prunastri</i>	LC	Cort	Ash Twig
0613	<i>Lecania cyrtella</i>	LC	Cort	Elm twig
1707	<i>Lecania inundata</i>	LC NS	Sax	Boundary wall
0627	<i>Lecanora albescens</i>	LC	Sax	Marble headstone
0635	<i>Lecanora campestris</i> subsp. <i>campestris</i>	LC	Sax	Boundary wall
0639	<i>Lecanora chlorotera</i>	LC	Cort	Ash branches and twigs
0646	<i>Lecanora dispersa</i>	LC	Sax	Marble headstones and mortar courses of boundary wall
0649	<i>Lecanora expallens</i>	LC	Cort	Trunk of small Oak
0661	<i>Lecanora muralis</i>	LC	Sax	Top of sandstone headstone
0667	<i>Lecanora polytrapa</i>	LC	Sax	Sandstone coffin tomb
0796	<i>Lecidella carpathica</i>	LC	Sax	Brickwork of boundary wall
0797	<i>Lecidella elaeochroma</i> f. <i>elaeochroma</i>	LC	Cort	Ash Twig
0802	<i>Lecidella scabra</i>	LC	Sax	Brickwork of boundary wall
1974	<i>Lepraria incana</i> s. str.	LC	Sax	Sandstone headstone
1604	<i>Lepraria vouauxii</i>	LC	Sax	Limestone memorial
0849	<i>Leptogium turgidum</i>	LC	Sax	Among chippings of concrete based kerbed tomb
1020	<i>Melanelixia subaurifera</i>	LC	Cort	Yew branch
#N/A	<i>Opegrapha</i> cf. <i>ochrocheila</i>	#N/A	Sax	Mortar course of boundary wall
2441	<i>Opegrapha viridipruinosa</i>	LC NS	Cort	Ash trunk
1022	<i>Parmelia sulcata</i>	LC	Cort	Yew branch
1008	<i>Parmotrema perlatum</i>	LC	Sax	Twig of Cemetery tree
1107	<i>Phaeophyscia orbicularis</i>	LC	Cort+Sax	Ash twig and top of headstone
1112	<i>Physcia adscendens</i>	LC	Cort	Yew twig
1114	<i>Physcia caesia</i>	LC	Sax	Sandstone headstone
1120	<i>Physcia tenella</i>	LC	Cort	Yew twig
1127	<i>Physconia grisea</i>	LC	Cort	Sycamore branch
1492	<i>Placopyrenium fuscillum</i>	LC	Sax	Limestone cross
1167	<i>Polysporina simplex</i>	LC	Sax	Granite memorial
1168	<i>Porina aenea</i>	LC	Cort	Sycamore trunk
1690	<i>Porpidia sooredizodes</i>	LC	Sax	Sandstone headstone
0572	<i>Porpidia tuberculosa</i>	LC	Sax	Sandstone headstone and flat slab (where abundantly fertile)
1189	<i>Protoblastenia rupestris</i>	LC	Sax	Common on various limestone memorials
1637	<i>Psilolechia leprosa</i>	LC M*	Sax	Limestone cross on copper stained surface
1200	<i>Psilolechia lucida</i>	LC	Sax	Sandstone headstones
1989	<i>Punctelia jeckeri</i>	LC	Cort	Sycamore twig

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2070	<i>Punctelia subrudecta</i> s. str.	LC	Cort	Ash twig
1234	<i>Ramalina farinacea</i>	LC	Cort	Sycamore branch
1235	<i>Ramalina fastigiata</i>	LC	Cort	Ash twig
1266	<i>Rhizocarpon reductum</i>	LC	Sax	Granite coffin tomb
1389	<i>Thelidium incavatum</i>	LC	Sax	Table top and other limestone memorials
1871	<i>Verrucaria elaeina</i>	LC	Sax	Crust of flint
1510	<i>Verrucaria nigrescens</i> f. <i>nigrescens</i>	LC	Sax	Limestone coffin tomb
2514	<i>Verrucaria nigrescens</i> f. <i>tectorum</i>	LC	Sax	Common on various limestone memorials
1511	<i>Verrucaria ochrostoma</i>	DD NR	Sax	Limestone headstone
1518	<i>Verrucaria viridula</i>	LC	Sax	Boundary wall
1530	<i>Xanthoria parietina</i>	LC	Cort	Elm and Sycamore twigs

TOTAL NUMBER OF LICHEN TAXA RECORDED AT RECTORY LANE CEMETERY = 70			
Substrate		Definition	Total
<b>Bry</b>	Bryicolous	On moss	0
<b>Cort</b>	Corticolous	On Bark	23
<b>Lig</b>	Lignicolous	On lignum (timber)	0
<b>Sax</b>	Saxicolous	On stone, brick, mortar etc	48



**Figure 1:** *Clauzadea monticola* - brown crust with dark fruits, *Protoblastenia rupestris* - buff crust with orange fruits, *Verrucaria nigrescens* f. *tectorum* - black crust with ginger isidia and pale snail-grazed crusts



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**Figure 2:** Table top tomb, much of the upper surface is pitted; these pits are the fruiting bodies of the lichen *Thelidium incavatum* which lives within the stone



**Figure 3:** *Psilolechia lucida* 'elucidating' the lettering on a headstone previously affected by ivy.

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**Smith, C. W., Aptroot, A., Coppins, B. J., Fletcher, A., Gilbert, O. L., James, P. J. & Wolseley, P. A.** (2009). *The Lichens of Great Britain and Ireland*. London: British Lichen Society.

**Gilbert, O. L.** (1970), *FURTHER STUDIES ON THE EFFECT OF SULPHUR DIOXIDE ON LICHENS AND BRYOPHYTES*. New Phytologist, 69: 605–627. doi: 10.1111/j.1469-8137.1970.tb07613.x

British Lichens Website species gallery: <http://www.britishlichens.co.uk/speciesgallery.html>

British Lichen Society Website: <http://www.britishlichensociety.org.uk/>

**Available from the British Lichen Society website:**

BLS Churchyard Lichens factsheet: *CHURCHYARD LICHENS: A factsheet – your questions answered* (pdf –updated September 2012)

British Lichen Society

Chester, T. and Palmer, K. (1994); Chester, T. (2001); Revised: Pedley, I. (BLS Churchyards Project Co-ordinator) (2009) Churchyard Lichens, Green\_cfga\_article\_IP\_final.pdf