

LICHENS AT BOLNHURST (ST DUNSTAN) CHURCHYARD

(TL081.587, VC30 Bedfordshire)

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Churchyards are hotspots for lichen biodiversity. In a lowland agricultural landscape they are important in providing a wide range of rock types and the church building usually provides stonework of considerable antiquity. This survey resulted in the addition of three lichens to the Bedfordshire list (which stood at a total of 356 at the end of 2013).

The number of lichen species that are recorded at individual churchyard sites is increasing. When Sharnbrook churchyard was surveyed in 1992 the list of 57 species was the highest total for any Bedfordshire churchyard at that time. Bolnhurst churchyard was previously surveyed in 1992 when fifty lichens were recorded. Nowadays it is not uncommon to breach the 100 milestone. There are various reasons for this increase in the totals recorded. The decline of atmospheric sulphur dioxide pollution is one factor. The lichen communities of the Midlands were seriously impoverished by this pollutant and Bedfordshire was particularly affected by emissions from the Marston Vale brickworks. The concentration of sulphur dioxide has declined enormously in recent years and we are witnessing a spectacular re-invasion of lichen species which were previously unable to grow in our region. The lichens which grow on tree bark are spreading particularly quickly and *Fuscidea lightfootii*, found on a tree beside the drive approaching the churchyard, was considered to be mainly an upland species until the past few years when it has become common in the lowlands. Advances in our taxonomic knowledge of lichens have resulted in a more refined understanding of the taxa involved. A decade or so ago, the yellow powdery lichens on stonework were recorded as a single entity; now we realise that at least five separate species are involved (all five of which were found at Bolnhurst). Finally the development of collection techniques which are non-damaging to stonework has allowed a more thorough study of cryptic species using microscopic techniques. An example from the current survey is the identification of *Thelidium decipiens* from a string course on the north side of the church. This species grows immersed in limestone and non-lichenologists often fail to realise that living lichen is present at all. Even lichenologists are unable to reliably identify such crusts with certainty in the field – several species appear identical through a hand lens and spore characteristics are required for accurate identification.

The list presented below contains 109 lichen taxa (the term ‘taxa’ refers to species, subspecies and forms; it gives a total of all the different entities which were recorded) found during the current survey on the church of St Dunstan, Bolnhurst and in its yard. This total includes a few taxa which are only tentatively identified. On first entering a churchyard I sometimes play a game and that is to make a prediction of what the total is likely to be. I had guessed about ninety which is slightly conservative for an old churchyard because I had noticed the rather small number of old sandstone headstones, the complete absence of chest, coffin or coped tombs, the lack of old wooden structures, the absence of any boundary wall and few lichen-rich trees within the yard. The total for the church building is rather high at sixty four while the churchyard features are generally not rich but with a few notable exceptions. Two headstones in the churchyard support the Nationally Rare *Rinodina calcarea*. The designation of Nationally Rare indicates that this species has been recorded in less than sixteen British hectads (10 x 10km squares) of the national mapping grid. In fact it is rather overlooked as it is only recently that lichenologists have become familiar with it in its normal sterile state. Even though it may soon be downgraded to Nationally Scarce, it is still a species with conservation importance as it is associated with stonework of antiquity.

<http://fungi.myspecies.info/all-fungi/rinodina-calcarea>

New to Bedfordshire

Lecanora campestris subsp. *dolomitica* is present in some abundance on one old headstone near the south-west corner of the churchyard. The 1992 survey recorded *Pertusaria amara* which we did not find and it is possible that the *Pertusaria* record was a case of mistaken identity for the *L. c.* subsp. *dolomitica*. In fact when I first examined this headstone I transferred some of the soredia to my tongue anticipating the intensely bitter taste characteristic of *P. amara* and the lack of this taste led me to open my mind to other possibilities.

Opegrapha gyrocarpa is present as several thalli on brickwork low down on the north wall of the church close to the north-east corner of the building. The appearance of this lichen is very similar to a lichen which we found on Whipsnade church but in that case no spot reactions were found and its identity remains uncertain (perhaps *O. zonata*?). The Bolnhurst thalli have soredia which produce a strong C+ red reaction.

Physconia perisidiosa is present as one strange thallus on a headstone near the south-east corner of the churchyard. Phil noticed that this appeared different from the very similar *P. grisea* which is also present on the same stone. The upper cortex of the lobes is scleroplectenchymatous and the rhizines are like black bottle brushes ruling out *P. grisea* and *P. enteroxantha*. *P. distorta* shares the two features stated above but that species is usually abundantly fertile. I consider this to be an atypical thallus of *P. perisidiosa*, the production of isidia being considerably suppressed.

Lichens tend to require no management, slowly doing their own thing if left alone. The largest threat to gravestone communities tends to be ivy which can quickly engulf a gravestone and kill off lichen communities which have taken many decades to develop. Another potential source of damaging shade is from tree branches. Neither of these threats is currently threatening notable lichen communities at Bolnhurst.

The British Lichen Society provides further information about churchyard lichens:

www.britishlichensociety.org.uk

The author is always happy to correspond and offer further advice.



Figure 1, part of south aspect of Bolnhurst church showing the very rich limestone mouldings supporting ancient lichen communities. The lower moulding is called the chamfered plinth, above which is a string course and then the window sill.



Figure 2, colourful metallophytes near the north-east corner of the church. The limestone of the window sill and frame is seen to be stained blue due to past contamination with copper from grilles protecting the windows. Copper is toxic to most lichens but a few specialist metallophytes survive and these are one of the fascinating aspects of churchyard lichenology. On the most intensely contaminated limestone the obligate metallophyte, *Psilolechia leposa* is present in some quantity. This species resembles bread crumbs and its identity is confirmed by its red reaction on applying a drop of calcium hypochlorite (e.g. Parazone). Bright sulphur yellow patches of the closely related *Psilolechia lucida* tolerates the contamination rather than being reliant on it. To either side of the intense contamination a bright chrome-yellow powdery lichen is conspicuous. Recent genetic work (Powell & Vondrák 2011) has shown that this is actually an undescribed species which we are calling for convenience *Caloplaca 'austroctrina'*.



Figure 3 the churchyard has relatively few old gravestones making those that are present even more important. Two of the old stones present in the left hand side of the image are of sand-ironstone, a rock that produces a distinctive lichen community. Note the ivy on the right hand gravestone which has smothered the lichens. The presence of brickwork adds to the lichen diversity of the church; on the opposite north wall *Opegrapha gyrocarpa* is present, new to Bedfordshire.



Figure 4 the closest gravestone in the foreground has its upper part dominated by rosettes of *Physconia*. Those on the right hand side are the commonest species, *P. grisea*. A single thallus on the left side is of *P. perisidiosa*, new to Bedfordshire.



Figure 5, an old gravestone near the south-west corner of the churchyard. The most conspicuous pale powdery crust seen in quantity on the nearest side of the stone, as well as the underhanging side, is *Lecanora campestris* subsp. *dolomitica*, new to Bedfordshire.

Lichens recorded at Bolnhurst church and in its yard, with notes on selected species.

Nomenclature follows Smith *et al.* (2009) except for some recent changes to species concepts and name changes.

In front of the species name is the standard British Lichen Society number.

Sax = saxicolous (growing on stone), Cort = corticolous (growing on bark), Lig = lignicolous (growing on wood without bark)

XX = on church, XY = in churchyard

“Cf.” denotes uncertainty of identification.

The third column gives the IUCN and restricted distribution designations.

A full explanation of the various codes can be found on the British Lichen Society website or from the author.

					1992	
10	<i>Acarospora fuscata</i>	LC	Sax	XY	x	
	<i>Acarospora cf. nitrophila</i>			XY		C-, K- thallus on sandstone headstone (which also supports <i>A. fuscata</i>)
33	<i>Acrocordia conoidea</i>	LC	Sax	XX		On string course on north side of church
212	<i>Amandinea punctata</i>	LC	Cort	XY		
69	<i>Arthonia radiata</i>	LC	Cort	XY		
103	<i>Aspicilia calcarea</i>	LC	Sax	XX	x	
107	<i>Aspicilia contorta subsp. contorta</i>	LC	Sax	XX	x	
113	<i>Aspicilia contorta subsp. hoffmanniana</i>	DD NR	Sax	XX		
	<i>Bacidia sp.</i>		Lig	XY		On chemically treated timber of compost heap. This is common throughout Britain but its exact identity is not known
148	<i>Bacidia fuscoviridis</i>	LC NS	Sax	XX		On shaded stonework close to ground level on north side of church
165	<i>Bilimbia sabuletorum</i>	LC	Sax	XX		
1628	<i>Botryolepraria lesdainii</i>	LC	Sax	XX		
200	<i>Buellia aethalea</i>	LC	Sax	XX		
2442	<i>Caloplaca arcis</i>		Sax	XX		
239	<i>Caloplaca aurantia</i>	LC	Sax	XX	x	
242	<i>Caloplaca cerinella</i>	LC	Cort	XY		
263	<i>Caloplaca chlorina</i>	LC	Sax	XY		
	<i>Caloplaca citrina</i>				x	
	<i>Caloplaca decipiens</i>				x	
2443	<i>Caloplaca dichroa</i>		Sax	XX		
259	<i>Caloplaca flavescens</i>	LC	Sax	XX	x	
2315	<i>Caloplaca flavocitrina</i>	LC	Sax	XX		
2527	<i>Caloplaca holocarpa</i>		Sax	XX	x	
264	<i>Caloplaca marmorata</i>	LC	Sax	XY		
2461	<i>Caloplaca oasis</i>		Sax	XX		Present in its ‘parasitic’ form on <i>Verrucaria baldensis</i>
277	<i>Caloplaca saxicola</i>	LC	Sax	XX	x	
281	<i>Caloplaca teicholyta</i>	LC	Sax	XX	x	
284	<i>Caloplaca variabilis</i>	LC	Sax	XX	x	
291	<i>Candelariella aurella f. aurella</i>	LC	Sax	XX	x	
296	<i>Candelariella medians f. medians</i>	LC	Sax	XX	x	
297	<i>Candelariella reflexa</i>	LC	Cort	XY		
298	<i>Candelariella vitellina f. vitellina</i>	LC	Sax	XY	x	
306	<i>Catillaria chalybeia var. chalybeia</i>	LC	Sax	XY		
311	<i>Catillaria lenticularis</i>	LC	Sax	XX	x	
751	<i>Clauzadea monticola</i>	LC	Sax	XX		On string course on north side of church
491	<i>Diploicia canescens</i>	LC	Sax	XX	x	

496	<i>Diplotomma alboatrum</i>	LC	Sax	XX	x	
317	<i>Diplotomma murorum</i>	NE NR	Sax	XX		Several thalli present on limestone on south side of church
500	<i>Dirina massiliensis f. soreciata</i>	LC	Sax	XX	x	
511	<i>Evernia prunastri</i>	LC	Cort	XY		
987	<i>Flavoparmelia caperata</i>	LC	Cort	XY		
521	<i>Fuscidea lightfootii</i>	LC	Cort	XY		
	<i>Haematomma ochroleucum var. porphyrium</i>				x	
1013	<i>Hypotrachyna revoluta</i>	LC	Cort	XY		
547	<i>Jamesiella anastomosans</i>	LC	Cort	XY		
613	<i>Lecania cyrtella</i>	LC	Cort	XY		
616	<i>Lecania erysibe</i>	LC	Sax	XY	x	
1707	<i>Lecania inundata</i>	LC NS	Sax	XX		
159	<i>Lecania naegelii</i>	LC	Cort	XY		
1708	<i>Lecania rabenhorstii</i>	LC NS	Sax	XX		
627	<i>Lecanora albescens</i>	LC	Sax	XX	x	
635	<i>Lecanora campestris subsp. campestris</i>	LC	Sax	XX	x	
1685	<i>Lecanora campestris subsp. dolomitica</i>	LC NS	Sax	XY		On an old headstone near south-west corner of yard
639	<i>Lecanora chlarotera</i>	LC	Cort	XY		
	<i>Lecanora conizaeoides</i>				x	
644	<i>Lecanora crenulata</i>	LC	Sax	XX	x	
646	<i>Lecanora dispersa</i>	LC	Sax	XX	x	
649	<i>Lecanora expallens</i>	LC	Cort	XY		
1764	<i>Lecanora horiza</i>	NT NS	Sax	XX		
661	<i>Lecanora muralis</i>	LC	Sax	XX	x	
667	<i>Lecanora polytropa</i>	LC	Sax	XY	x	
783	<i>Lecanora sulphurea</i>	LC	Sax	XY	x	
621	<i>Lecanora hagenii</i>	NE	Cort	XY		
797	<i>Lecidella elaeochroma f. elaeochroma</i>	LC	Cort	XY		
802	<i>Lecidella scabra</i>	LC	Sax	XY	x	
803	<i>Lecidella stigmathea</i>	LC	Sax	XX	x	
1974	<i>Lepraria incana s. str.</i>	LC	Sax	XX	x	
1604	<i>Lepraria vouauxii</i>	LC	Sax	XX		
1020	<i>Melanelixia subaurifera</i>	LC	Sax	XY		
959	<i>Opegrapha calcarea</i>	LC	Sax	XX		
947	<i>Opegrapha gyrocarpa</i>	LC	Sax	XX, SBr		On brickwork low down on north wall of church near the north-east corner of the building
2132	<i>Opegrapha rupestris #</i>	LC NS	Lic	Z1480		
1022	<i>Parmelia sulcata</i>	LC	Cort	XY		
1008	<i>Parmotrema perlatum</i>	LC	Cort	XY		
	<i>Pertusaria amara</i>				x	
1107	<i>Phaeophyscia orbicularis</i>	LC	Sax	XX	x	
1112	<i>Physcia adscendens</i>	LC	Sax	XX	x	

1114	<i>Physcia caesia</i>	LC	Sax	XX	x	
1120	<i>Physcia tenella subsp. tenella</i>	LC	Cort	XY		
1127	<i>Physconia grisea</i>	LC	Sax	XY	x	
1129	<i>Physconia perisidiosa</i>	LC	Sax	XY		On an old headstone near the south-east corner of the yard
732	<i>Placynthiella icmalea</i>	LC	Lig	XY, LTs	x	
572	<i>Porpidia tuberculosa</i>	LC	Sax	XY	x	
1189	<i>Protoblastenia rupestris</i>	LC	Sax	XX		
1637	<i>Psilolechia leprosa</i>	LC	Sax	XX	x	
1200	<i>Psilolechia lucida</i>	LC	Sax	XX	x	
1989	<i>Punctelia jeckeri</i>	LC NS	Cort	XY		
2070	<i>Punctelia subrudecta s.str.</i>	LC	Cort	XY		
1234	<i>Ramalina farinacea</i>	LC	Cort	XY		
1235	<i>Ramalina fastigiata</i>	LC	Cort	XY		
1801	<i>Rinodina calcarea</i>	LC NR	Sax	XY		
1289	<i>Rinodina oleae</i>	LC	Sax	XX		
1300	<i>Rinodina teichophila</i>	LC	Sax	XX	x	
1306	<i>Sarcogyne regularis</i>	LC	Sax	XX		
1307	<i>Sarcopyrenia gibba var. geisleri #</i>	LC	Sax	XX		
1322	<i>Scoliciosporum umbrinum</i>	LC	Sax	XY		On bare metal of lamp standard
630	<i>Tephromela atra var. atra</i>	LC	Sax	XX	x	
1385	<i>Thelidium decipiens</i>	LC	Sax	XX, XSc		On string course of north wall of church, also on limestone curb in churchyard
1415	<i>Toninia aromatica</i>	LC	Sax	XX	x	
1431	<i>Trapelia coarctata</i>	LC	Sax	XX, XRf		
1432	<i>Trapelia glebulosa</i>	LC	Sax	XX, XRf		
	<i>Verrucaria baldensis</i>				x	
1480	<i>Verrucaria calciseda</i>	LC NR	Sax	XX		
1492	<i>Verrucaria fuscella</i>	LC	Sax	XX	x	
1495	<i>Verrucaria hochstetteri</i>	LC	Sax	XX		
1519	<i>Verrucaria macrostoma f. furfuracea</i>	LC	Sax	XX		
	<i>Verrucaria muralis</i>				x	
1510	<i>Verrucaria nigrescens f. nigrescens</i>	LC	Sax	XX		
2514	<i>Verrucaria nigrescens f. tectorum</i>		Sax	XX		
1511	<i>Verrucaria ochrostoma</i>	DD NR	Sax	XX		Present as at least three thalli, two of them on windowsills
1518	<i>Verrucaria viridula</i>	LC	Sax	XX	x	
1526	<i>Xanthoria calcicola</i>	LC	Sax	XX	x	
2364	<i>Xanthoria candelaria s.str.</i>		Cort	XY		
1530	<i>Xanthoria parietina</i>	LC	Sax	XY	x	
1531	<i>Xanthoria polycarpa</i>	LC	Cort	XY		

Another rarity

Diplotomma murorum is a Nationally Rare species which appears to have a stronghold in North Bedfordshire – there are other occurrences on Keysoe church and on the old river bridge at Felmersham. It is not known whether this is a real cluster or just a quirk of the records database and that I am one of the few lichenologists who notice or record it. Even its acceptance as a true species is controversial and some think it is conspecific with *D. alboatrum*. When recorded as *D. murorum* the lichen is behaving as a parasite on *Caloplaca teicholyta* and takes over the central part of the *Caloplaca* thallus and causes the strange sight of apparently fertile *C. teicholyta* but with charcoal grey fruiting bodies rather than the orange-red true fruits of that species.

References

- Powell, M. & Vondrák, J.** (2011) *Caloplaca citrina* and *C. lactea* are incorrectly understood in the British Isles. *Bull. Brit. Lichen Soc.* **109**: 25-30.
- Smith, C. W., Aptroot, A., Coppins, B. J., Fletcher, A., Gilbert, O. L., James, P. J. & Wolseley, P. A.,** (eds) (2009) *The Lichens of Great Britain and Ireland*. London: British Lichen Society.