LICHENS IN CAMBRIDGE CITY CEMETERY

TL482.594

A survey by the Cambridgeshire Lichen Group, 10th February 2018

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Summary

- This large cemetery, packed with memorials, gives a striking demonstration of the complexity that can occur in a man-made habitat.
- 106 taxa were recorded during a short winter day which was cut short by inclement weather. A further visit will be required to ensure that the site is treated comprehensively.
- One species is new to Cambridgeshire (*Arthonia epiphyscia* growing on *Physcia dubia*).
- As usual, several specimens defy positive identification.

A website devoted to the taxonomy of fungi (including lichens) is being developed in collaboration with the Natural History Museum and Kew Gardens. Images and micrographs of most of the species found at Cambridge City Cemetery are available there. See for example: http://fungi.myspecies.info/all-fungi/phaeophyscia-nigricans

Fig. 1. A tiny part of the cemetery near the west carpark. The unpleasant smell in this corner was found to be due to the fruits of *Ginkgo biloba* (tree trunk in right side of photo), which are apparently well-known for their pungent, sour and disagreeable odour.

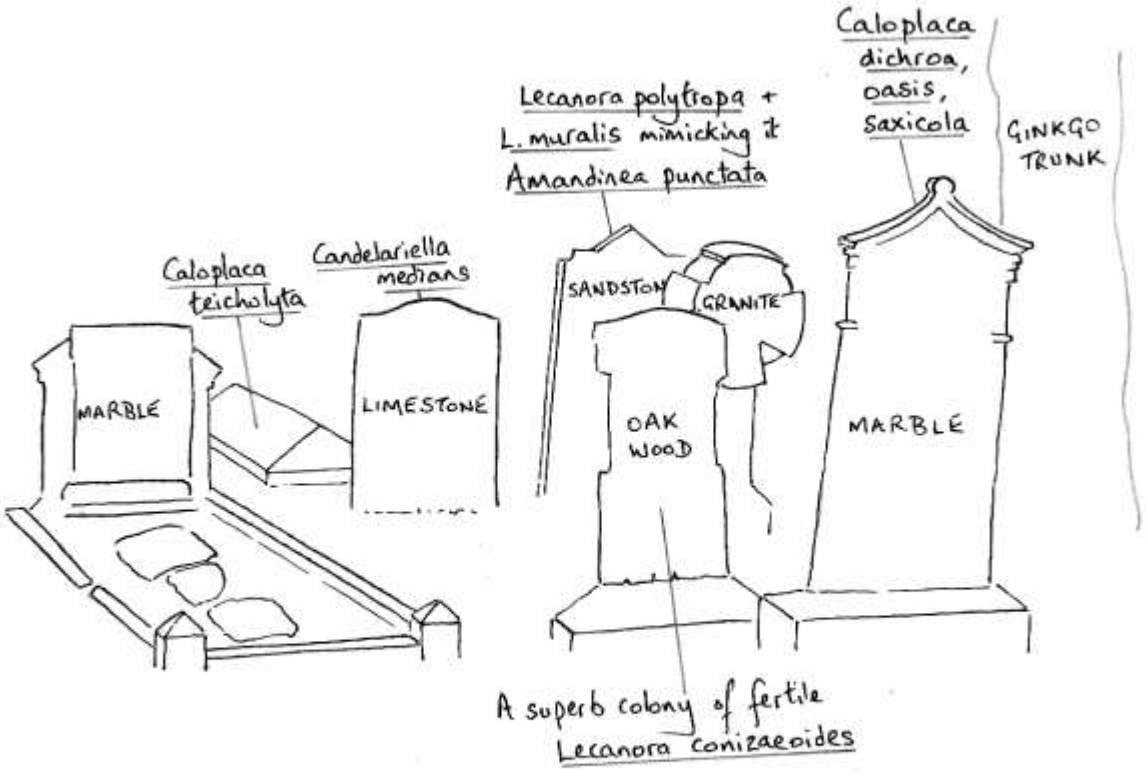

Fig. 2. Drawing of some of the features shown in photograph Fig. 1.

Fig. 3. A view across a small part of the cemetery showing the huge number and range of memorials. Despite many curbed graves, very few terricolous lichens were recorded, though this wet day did not encourage us to spend much time at ground level.

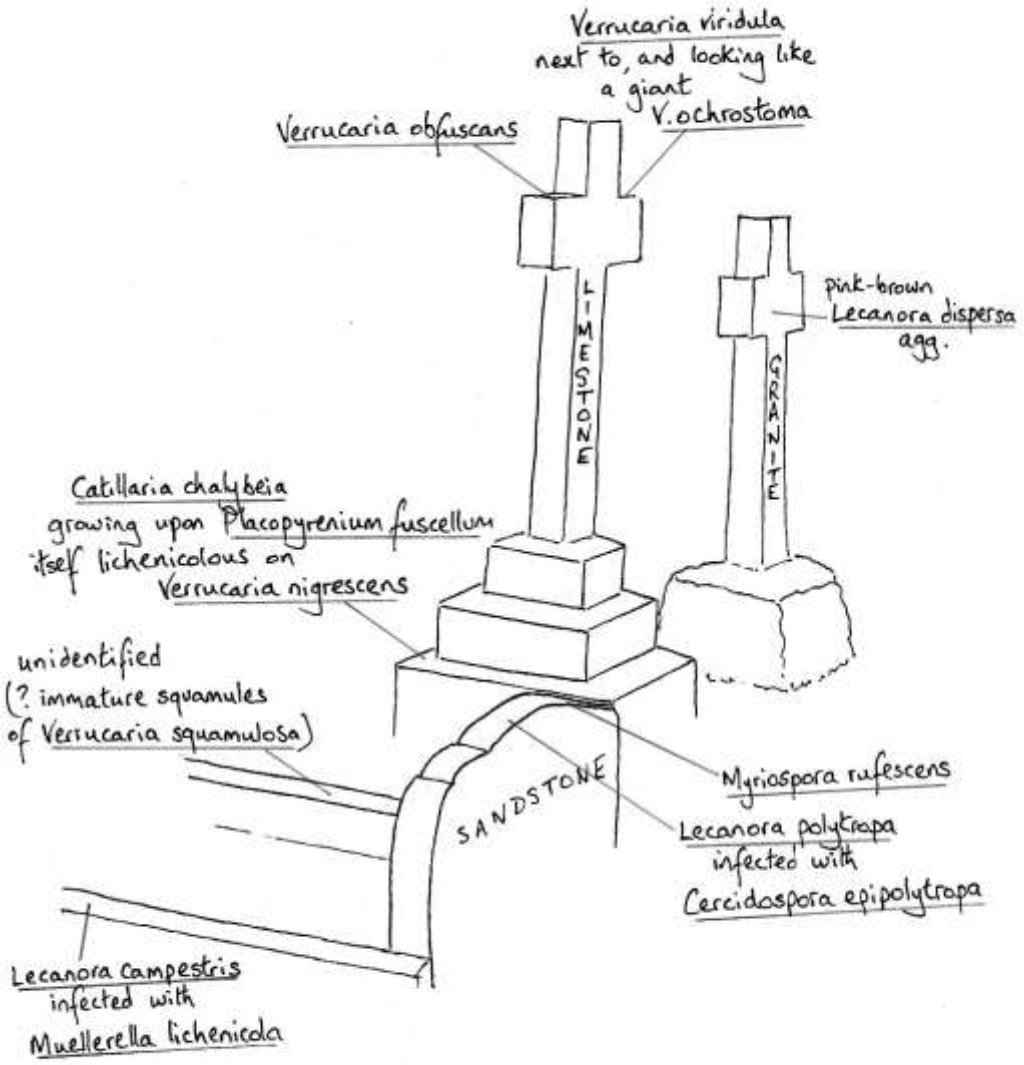

Fig. 4. Drawing of some of the features of Fig. 3.

Fig. 5. A more modern section of the cemetery. Polished granite and marble tend to support rather few lichen species and the highlights in these areas are the fine-grained sandstone memorials. Being recently colonized from fresh, unpolluted stone, these sandstone memorials develop a somewhat different community from that on Victorian/Edwardian sandstone. Myriospora rufescens is a particular feature of these modern sandstone gravestones (although this species does occasionally turn up on the older stones).

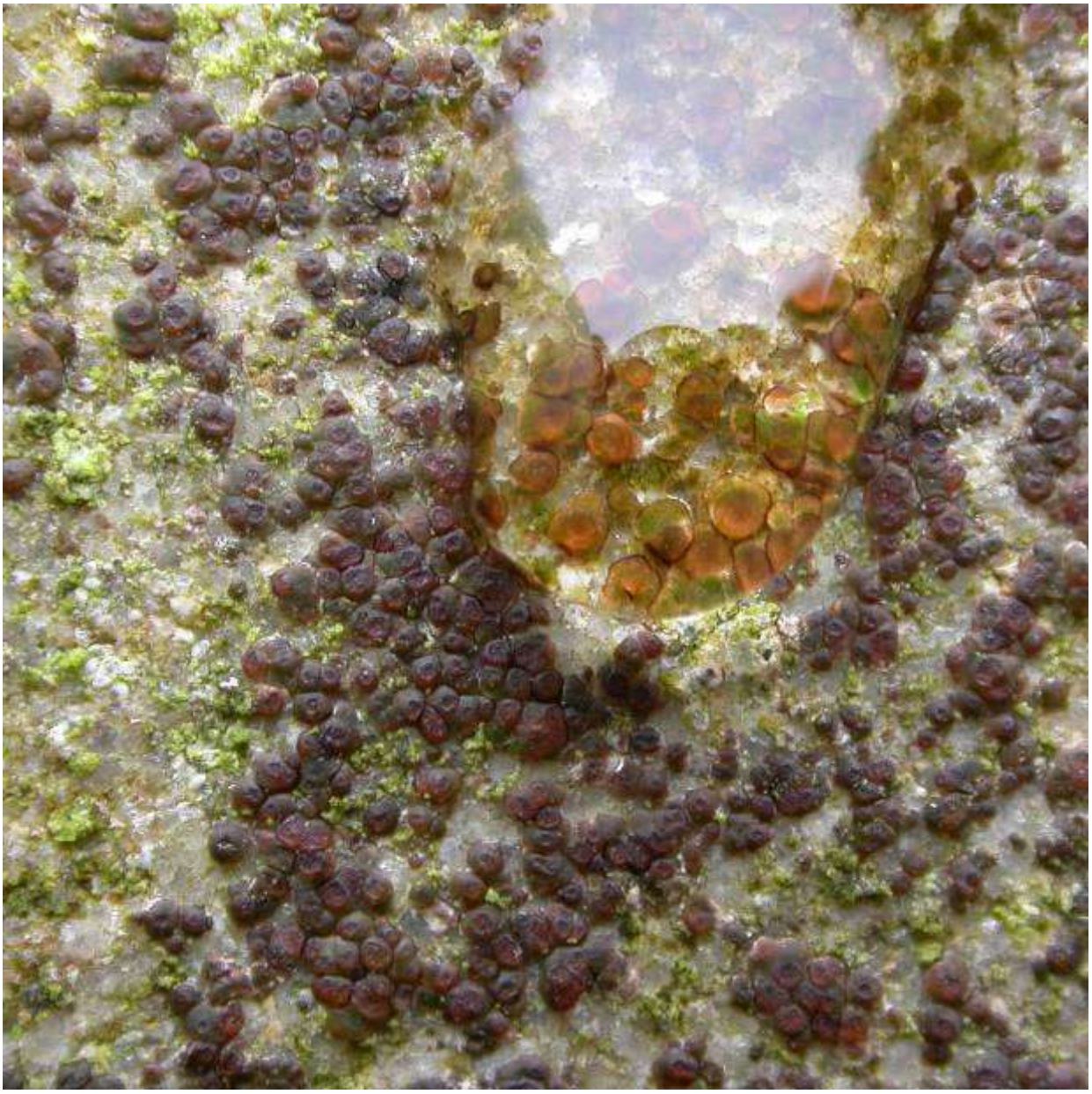

Fig. 6. *Myriospora* (*Acarospora*) *rufescens* on the side of a modern sandstone gravestone. This species is one of the few lichens that is perhaps more distinctive when wet, as demonstrated here by a serendipitous rain drop. When wet, the apothecia glow orange.

Fig. 7. *Rinodina oleae* or *Lecania inundata*? These two species can be surprisingly difficult to separate in the field. In this case the colony proved to be *R. oleae* but the minutely warted thallus and the presence of similar warts on the thalline margin (giving a crenulate appearance) could lead one to suspect *L. inundata*. This photograph is from the side of a mildly calcareous sandstone gravestone. Towards the right side of the image are some apothecia of *Lecanora dispersa* s. lat., the discs infected with *Arthonia apotheciorum*.

Fig. 8. A marble gravestone with lead lettering, toxic runoff from the letters cleaning the stone of lichens and cyanobacterial crust. These cyanobacterial crusts often include fungal hyphae and so perhaps they have more in common with lichens than we realise. At the least, it seems likely that they are communities of organisms forming rather stable crusts.

Fig. 9. A yellow bird-stripe (probably *Caloplaca dichroa*) stimulated by droppings down the side of a marble gravestone. Some lichens react with bird droppings to produce what appear to be spot reactions like those involving K. *Pertusaria coccodes* is sometimes turned bright red by droppings and *Parmelia sulcata* may become discoloured orange-red. The day before our field meeting, this subject was being discussed, prompted by a misidentification of a bird-stripe on *P. sulcata* as a lichenicolous fungus. It occurred to me that *Caloplaca* and *Xanthoria* species do not show K-type reactions when affected by bird droppings. Speculating that bird droppings may contain ammonia, I conducted some experiments with ammonia solution.

Fig. 10. Medulla of *Parmelia sulcata* tested with K (red arrow) and with ammonia solution (blue arrow). The ammonia produces a weak but distinct drab orange colour.

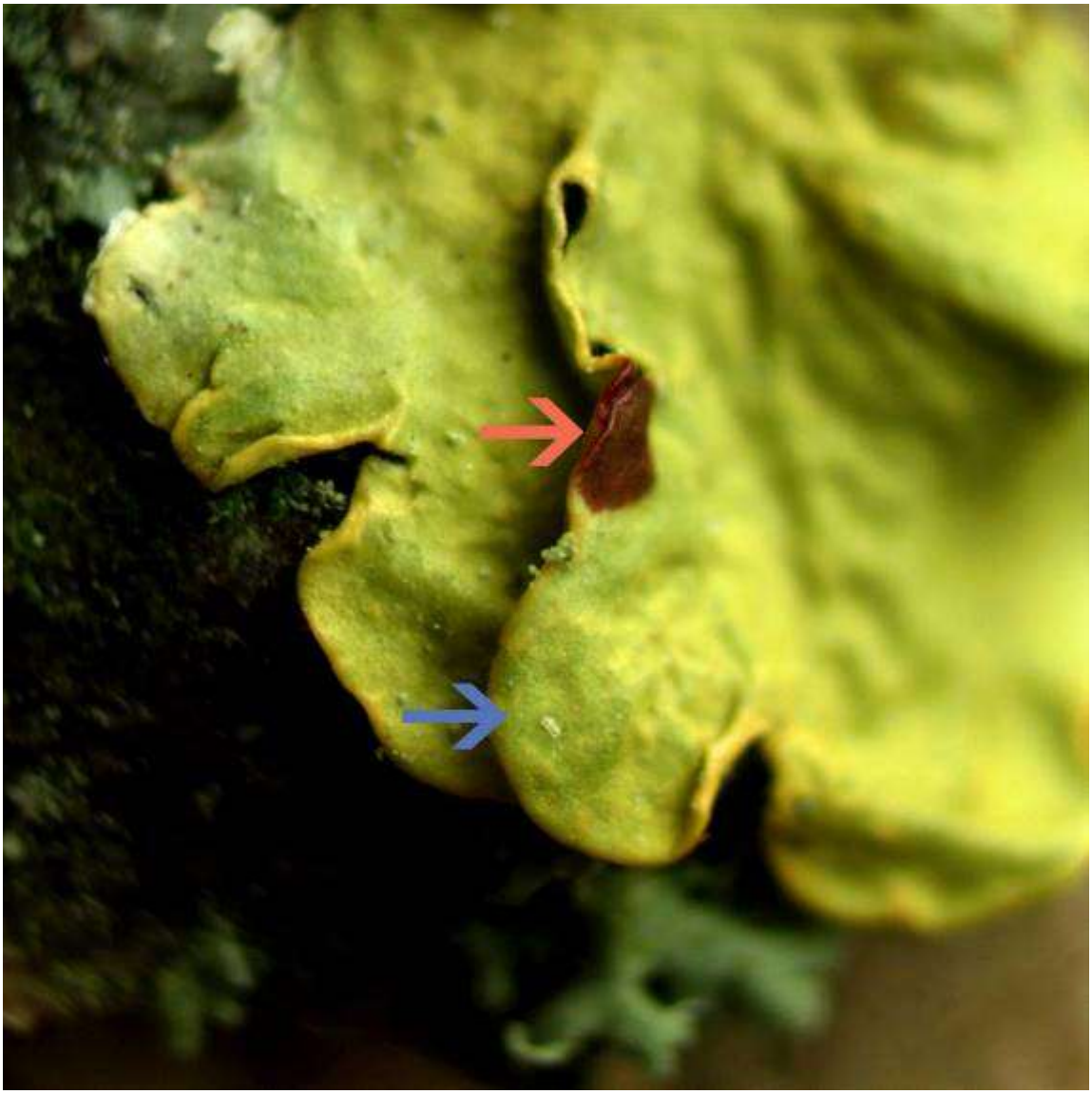

Fig. 11. Thallus of *Xanthoria parietina* tested with K (red arrow) and with ammonia solution (blue arrow). Much to my surprise, strong ammonia solution gives absolutely no reaction (I had anticipated that it would act much like K). So, perhaps the presence of ammonia (or a related compound) in bird droppings explains why Parmelioids containing salazinic acid discolour orange-red while *Caloplaca* and *Xanthoria* species show no poo-reaction.

Fig. 12. A coped limestone tomb contaminated by copper run-off from a bronze cross. The most heavily contaminated rock is bare of lichens and is stained blue. Elsewhere the tomb is dominated by *Verrucaria obfuscans*, with small amounts of *V. nigrescens* and *V. ochrostoma*.

Fig. 13. A sandstone gravestone and a granite one. Being somewhat porous, the sandstone draws groundwater up by capillarity and this results in a ‘tide-mark’ indicating the upper edge of this zone, which is made more calcareous by lime in the ground water. The granite is impervious and shows no such phenomenon.

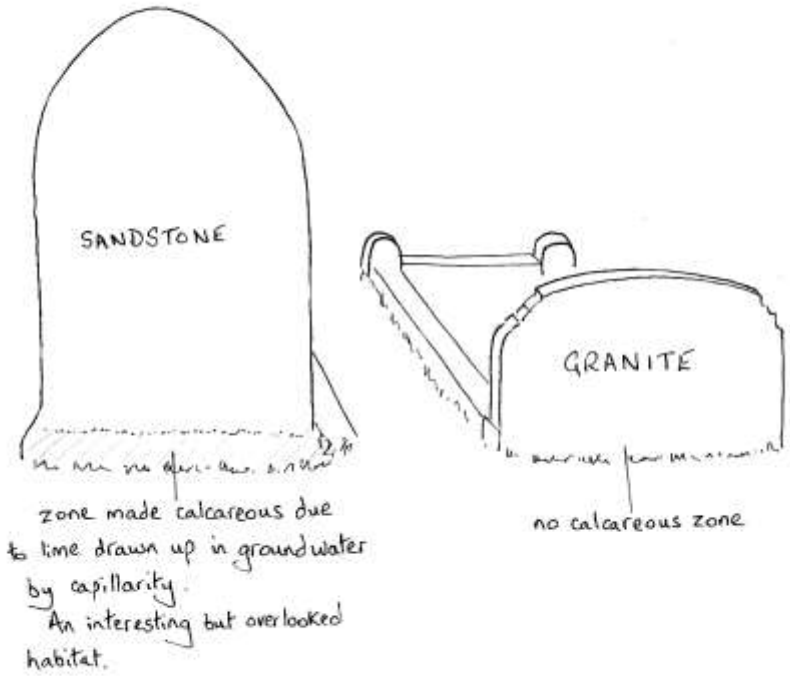

Fig. 14. Drawing of features of Fig. 13.

Fig. 15. The top of this war grave is developing a sparse growth of lichen including apothecia belonging to a species of *Lecania*. This is certainly not the first time that I have observed *Lecania* fruits on the tops of war graves. The general lack of any discernible thallus makes these colonies appear rather like saxicolous *L. cyrtella* but the spores are too narrow. I am fairly sure, but far from certain, that these are *L. erysibe* with a very suppressed thallus. Some patches of blastidiate thallus are present on this stone, resembling the thallus of *L. erysibe* and some of the apothecia have a slight suggestion of blastidia on their margins. A sorediate lichen growing on the tops of war graves towards the west side of the cemetery has so far defied identification.

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. In this well-kept cemetery the threat from ivy is currently minimal. Another potential source of damaging shade is from tree branches, again the planting of trees has been sensible achieving amenity while leaving large areas open. Another advantage of a well-kept cemetery is that the grass sward is kept quite regularly mown which helps to keep the numbers of molluscs in some sort of check. The large number of closely spaced memorials further dilutes the effects of browsing by providing a large surface area of stone in proportion to the area of ground.

Table 1: list of lichens and lichenicolous fungi recorded at Cambridge City Cemetery
Column A gives the standard BLS number for each taxon.
Column B gives the name of each taxon recorded.
Column C indicates whether the taxon is a fungus traditionally recorded by lichenologists (F), a lichenicolous fungus (LF) or a lichen (0).
Column D gives the conservation designations as follows: DD = Data Deficient, LC = Least Concern, NS = Nationally Scarce, NR = Nationally Rare.

A	B	C	D
10	*Acarospora fuscata*	0	LC
38	*Agonimia tristicula*	0	LC
212	*Amandinea punctata*	0	LC
1501	*Arthonia apotheciorum*	{LF}	LC NS
122	*Arthonia epiphyscia*	{LF}	LC NR
1542	*Arthopyrenia punctiformis*	{F}	LC
107	*Aspicilia contorta subsp. contorta*	0	LC
137	*Bacidia caligans*	0	LC NS
140	*Bacidia chloroticula*	0	LC NS
200	*Buellia aethalea*	0	LC
207	*Buellia griseovirens*	0	LC
219	*Buellia ocellata*	0	LC
2442	*Caloplaca arcis*	0	LC NS
242	*Caloplaca cerinella*	0	LC
263	*Caloplaca chlorina*	0	LC
247	*Caloplaca citrina s. lat.*	0	LC
2443	*Caloplaca dichroa*	0	LC NS
259	*Caloplaca flavescens*	0	LC
2315	*Caloplaca flavocitrina*	0	LC
2527	*Caloplaca holocarpa s. str.*	0	LC
2461	*Caloplaca oasis*	0	LC
277	*Caloplaca saxicola*	0	LC
281	*Caloplaca teicholyta*	0	LC
289	*Candelaria concolor*	0	LC
291	*Candelariella aurella f. aurella*	0	LC
296	*Candelariella medians f. medians*	0	LC
297	*Candelariella reflexa*	0	LC
298	*Candelariella vitellina f. vitellina*	0	LC
1609	*Catillaria atomarioides*	0	LC NS
306	*Catillaria chalybeia var. chalybeia*	0	LC
2025	*Cercidospora epipolytropa*	{LF}	LC NS
911	*Cyrtidula hippocastani*	{F}	LC NS
491	*Diploicia canescens*	0	LC
2108	*Erythricium aurantiacum*	{LF}	LC
1018	*Flavoparmelia soredians*	0	LC
521	*Fuscidea lightfootii*	0	LC
1704	*Halecania viridescens*	0	LC NS
1125	*Hyperphyscia adglutinata*	0	LC
2468	*Hypotrachyna afrorevoluta*	0	LC
547	*Jamesiella anastomosans*	0	LC
613	*Lecania cyrtella*	0	LC
616	*Lecania erysibe s. str.*	0	LC
1707	*Lecania inundata*	0	LC NS
627	*Lecanora albescens*	0	LC
635	*Lecanora campestris subsp. campestris*	0	LC
639	*Lecanora chlarotera*	0	LC

641	*Lecanora confusa*	0	LC
643	*Lecanora conizaeoides f. conizaeoides*	0	LC
646	*Lecanora dispersa*	0	LC
649	*Lecanora expallens*	0	LC
661	*Lecanora muralis*	0	LC
667	*Lecanora polytropa*	0	LC
672	*Lecanora pulicaris*	0	LC
675	*Lecanora saligna*	0	LC
610	*Lecanora semipallida*	0	LC NS
680	*Lecanora stenotropa*	0	LC
688	*Lecanora symmicta*	0	LC
2474	*Lecidea grisella*	0	LC
796	*Lecidella carpathica*	0	LC
797	*Lecidella elaeochroma f. elaeochroma*	0	LC
802	*Lecidella scabra*	0	LC
803	*Lecidella stigmatea*	0	LC
1974	*Lepraria incana s. str.*	0	LC
849	*Leptogium turgidum*	0	LC
2096	*Lichenodiplis lecanorae*	{LF}	LC NS
1020	*Melanelixia subaurifera*	0	LC
719	*Micarea erratica*	0	LC
2116	*Muellerella lichenicola*	{LF}	LC
21	*Myriospora rufescens*	0	LC
948	*Opegrapha herbarum*	0	LC
1022	*Parmelia sulcata*	0	LC
1008	*Parmotrema perlatum*	0	LC
1106	*Phaeophyscia nigricans*	0	LC
1107	*Phaeophyscia orbicularis*	0	LC
1112	*Physcia adscendens*	0	LC
1114	*Physcia caesia*	0	LC
1116	*Physcia dubia*	0	LC
1120	*Physcia tenella*	0	LC
1127	*Physconia grisea*	0	LC
1492	*Placopyrenium fuscellum*	0	LC
732	*Placynthiella icmalea*	0	LC
2165	*Polycoccum pulvinatum*	{LF}	LC NS
1690	*Porpidia soredizodes*	0	LC
1189	*Protoblastenia rupestris*	0	LC
1200	*Psilolechia lucida*	0	LC
2070	*Punctelia subrudecta s. str.*	0	LC
2672	*Pyrenochaeta xanthoriae*	{LF}	0
1266	*Rhizocarpon reductum*	0	LC
1801	*Rinodina calcarea*	0	LC NR
1289	*Rinodina oleae*	0	LC
1306	*Sarcogyne regularis*	0	LC
1322	*Scoliciosporum umbrinum*	0	LC
692	*Trapeliopsis flexuosa*	0	LC

1495	*Verrucaria hochstetteri*	0	LC
1519	*Verrucaria macrostoma f. furfuracea*	0	LC
1510	*Verrucaria nigrescens f. nigrescens*	0	LC
2514	*Verrucaria nigrescens f. tectorum*	0	LC
2649	*Verrucaria obfuscans*	0	0
1511	*Verrucaria ochrostoma*	0	DD NR
1518	*Verrucaria viridula*	0	LC
1005	*Xanthoparmelia mougeotii*	0	LC
1526	*Xanthoria calcicola*	0	LC
1528	*Xanthoria elegans*	0	LC
1530	*Xanthoria parietina*	0	LC
1531	*Xanthoria polycarpa*	0	LC
950	*Xanthoria ucrainica*	0	LC NS

References

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.

Woods, R. G. & Coppins, B. J. (2012). A Conservation Evaluation of British Lichens and Lichenicolous Fungi. Species Status 13. Joint Nature Conservation Committee, Peterborough.