

LICHENS IN CHURCHYARDS

In unpolluted churchyards, lichens often form mosaics of colour, especially on the stonework, adding to the character and interest of the site. They vary in form from simple, powdery scatterings and crusts to more elaborate leafy or even bushy structures.

What are lichens?

Lichens are two or more organisms living together as one. A fungus forms the visible body of the lichen and within, protected by threads of fungal hyphae, cells of algae or cyanobacteria (sometimes both) provide nutrition by photosynthesis.

They reproduce by means of microscopic fungal spores capable, on finding a suitable partner, of colonising most surfaces which are reasonably stable and not too shaded or smooth. These spores are released from reproductive structures which may be disc-shaped and, when viewed through a hand-lens, resemble miniature jam tarts. Other reproductive structures are flask shaped and from the top appear like tiny "pimples" on the surface of the lichen. Lichens may also propagate themselves by means of powdery outgrowths, minute projections or fragments which are scattered in the wind and rain or dispersed by small creatures.

The importance of churchyards

Churchyards are of supreme importance for lichen conservation, particularly where there are no natural outcrops of rock.

Of the 2000 British species, over a third have been found in churchyards and more than 600 have been found growing on churchyard stone in lowland England.

Almost half the species are rare and some seldom if ever occur in other habitats.

Many churchyards are found to have well over 100 species. Churchyards provide an excellent environment for the study of lichen biology and colonisation.

Churchyard habitats

Provided there is sufficient light and moisture, lichens are able to colonise surfaces mostly unsuitable for flowering plants. Some grow very slowly, sometimes less than half a millimetre a year, while others grow more rapidly. Many are long-lived. Individual lichens may well be almost as old as the gravestones upon which they live. The ancient stonework of churches and churchyards, when undisturbed and unpolluted by

chemical sprays, thus provides a sanctuary for them. The geology is often varied: limestone, sandstone,

ironstone, marble, brick, mortar, slate and granite, each having their distinctive lichen communities. The tombstones, the stone surfaces of the boundary wall and of the church itself vary also from rough to smooth, shaded to exposed, damp to dry, horizontal to vertical, providing a multitude of niches. The lichens on the shaded north side and the sunny south side of the church are, for example, markedly different.

Further micro-habitats are provided by recessed lettering, soil crevices in boundary walls, sills stained with iron and copper, and the granite chippings within a kerbed grave. In addition, lichens are to be found on well-established trees, wooden structures such as seats and fences, grassy areas, pathways and even rubber dustbin lids!

How you can help

A balanced churchyard management plan is beneficial to all forms of wildlife. Neither meticulous tidiness nor neglect serve the lichen well.

Spraying around the base of tombstones to discourage 'weeds' may damage existing communities and leave unpleasant stains.

If, on the other hand, memorials are left to disappear under a sea of bramble, ivy or cow parsley, the lichens on them will die through lack of light.

Grass cuttings left to rot on low chest tombs and kerbs will have a similar detrimental effect.

Damage to stonework by lichens is minimal. Walls and tombs built of good quality stone have shown little deterioration, other than that caused by natural weathering, in hundreds of years. Indeed, a good covering of lichens may protect them.

The most obvious colonisation tends to occur on the tops of tombstones enriched by bird droppings. Sometimes, lichen growth emphasises an inscription. At other times, it may obscure certain details. Where cleaning is felt to be necessary for an inscription to be made legible, this can be achieved by using a soft brush and plain water. Spraying with pesticides or vigorous scrubbing may well cause more damage to the stone than any lichen colonisation. If, for any reason, large scale cleaning is felt to be necessary, it is wise first to seek advice.

Ideally, tombstones should remain *in situ*.

Some lichens are susceptible to the smallest of changes and, when stones have to be repositioned,

they are more likely to survive if the stone's alignment remains the same.

This applies equally to stones in boundary walls. Headstones propped against walls inevitably lose many of their lichens and shade out part of the wall flora as well. If a large number of older gravestones have to be moved, perhaps to make way for a church extension, it would be helpful to conduct a survey first. When new headstones are erected, local limestones and sandstones, if available, not only fit more naturally into the surrounding landscape but are also much more conducive to lichen growth than their imported, often highly polished counterparts.

Periodically, extensive repairs to the structure of the church itself may be necessary. The walls and towers of medieval churches can be especially rich in rare species and re pointing needs to be carried out carefully with soft lime mortar, taking care to avoid damage to the lichens. It helps if only a small section of wall is repaired at any one time.



Cladonia

One lichenologist described lichen colonies as 'minute, self-maintaining gardens that provide a natural cladding for the stone'. They are beautiful, endlessly fascinating, especially when viewed through a hand-lens. Like those of us who come to a churchyard for many and varied reasons, they thrive best in a stable, undisturbed and healthy environment. If we care for these places of rest and spiritual refreshment, we will show both respect for death and reverence for life in all its forms. Please help by allowing the lichens to rest in peace.

British Lichen Society (BLS) surveys

The Society is the main lichenological organization in Britain and is actively involved in conservation. Membership is open to everyone and newcomers are welcome. Details of membership can be found on the BLS web site <http://www.theBLS.org.uk> or from the BLS Secretary, c/o Botany Department, Natural History Museum, Cromwell Road, London SW7 5BD (email: BLS@nhm.ac.uk). The website has useful articles on lichens in churchyards, educational projects suitable for use in the churchyard environment and has links to other web sites of lichenological interest.

The Churchyard Project

The British Lichen Society's Lowland Churchyard project was instigated in the early 1990s by the late Tom Chester. One of the aims of the project was to survey at least one churchyard in each of the Ordnance Survey's 10km squares covering lowland Britain. This aim, as a Millennium Project, was achieved and its success was reflected, not only in a better knowledge of the distribution of the more common lichen species and the rediscovery of a few that were considered to be extinct, but also in a number of important spin-offs. Not least amongst these were ways of objectively assessing the relative value of each yard for lichens, the importance of conserving such places as long-term habitats, and also in broadening their appeal to all ages by using them as an educational resource for talks, guided walks and workshops.

Currently, further surveys covering the south west (now almost completed), Wales and the Welsh Borders, Northern England (almost complete) and Scotland and Northern Ireland are being undertaken. This ongoing work has continued to emphasise the importance of the Churchyard Environment to our lichen flora.

Useful books and other information

Baron George (1999) *Understanding lichens* Richmond Publishing

Dobson Frank (2004) *Guide to Common Churchyard Lichens*. Field Studies Council OP88.

Dobson Frank (2005) *Lichens. An Illustrated Guide to the British and Irish Species* (5th revised colour edition). Richmond Publishing.

Dobson Frank (2006) *A Field Key to Common Churchyard Lichens* (2nd edition) [available from Frank Dobson, 57 Acacia Grove, New Malden, Surrey KT3 3BU]

Gilbert Oliver (2000) *Lichens* Harper Collins (New Naturalist Series)

Purvis William (2000) *Lichens* The Natural History Museum (Life Series).

Original text: Tom Chester & Keith Palmer 1994; Tom Chester 2001

Revised text: Ivan Pedley (BLS Churchyards Project Co-ordinator) 2009