

The Bryophytes of St Lawrence Church, Bovingdon

An Illustrated Report

Sam Buckton



CONTENTS

INTRODUCTION.....	2
What are bryophytes?	2
The locality and habitats of St Lawrence Church.....	3
THE SURVEY	4
Methodology.....	4
Summary of results	4
GUIDED TOUR.....	4
The church.....	4
Grassland.....	10
Disturbed soil	14

Graves	18
The boundary wall	24
Gravel and tarmac paths.....	26
Living trees	27
Rotten logs and stumps	32
MANAGEMENT RECOMMENDATIONS	34
1) Maintain existing bryophyte-rich habitats.....	34
2) Introduce new bryophyte habitats	34
3) Remove invasive moss	34
REFERENCES.....	35
APPENDIX.....	35
Full bryophyte species list.....	35

INTRODUCTION

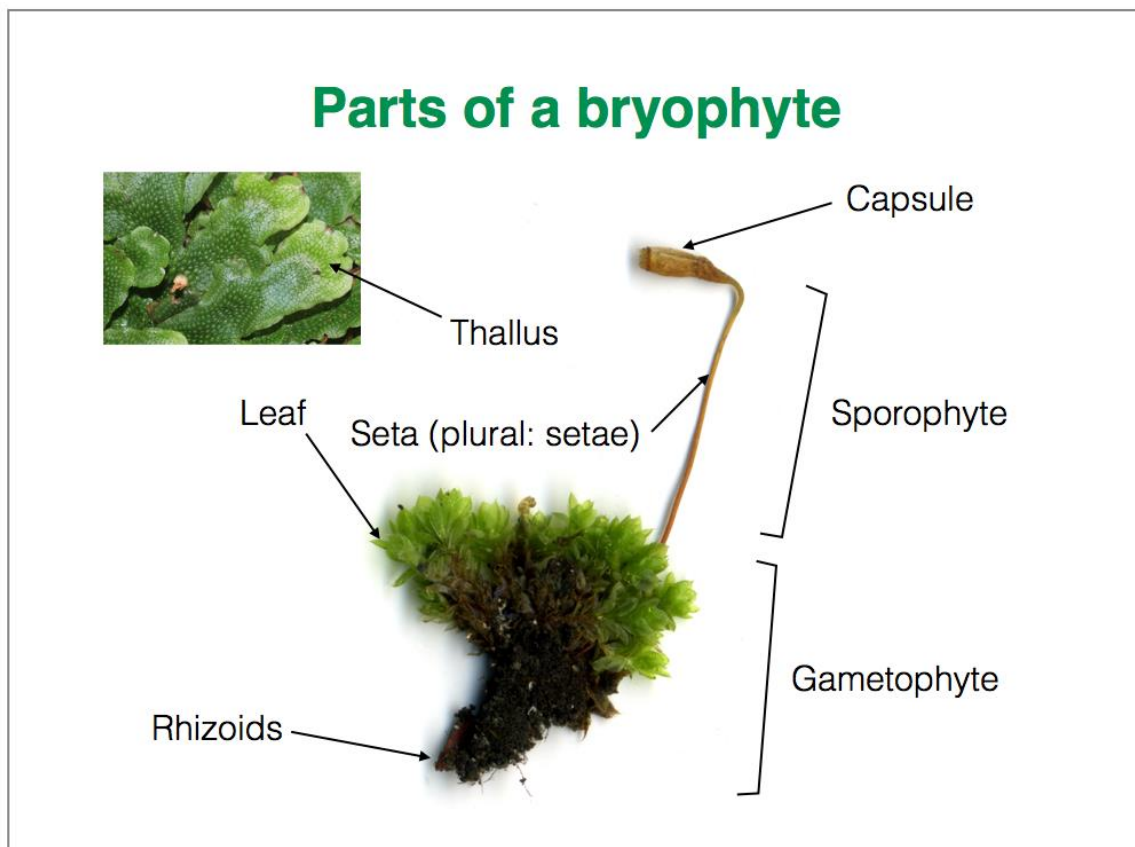
What are bryophytes?

Bryophytes are a group of plants comprising mosses, liverworts and hornworts. They are related to the flowering plants and conifers, but have no true vascular system (i.e. plumbing for transporting water and nutrients) - so rely more on absorbing substances directly from the environment into their tissues - and propagate via spores rather than seeds. Bryophytes are typically small, low-growing and damp-loving. The earliest land plants on Earth (which probably appeared ~500 million years ago) may have looked similar to today's bryophytes. Although they are regarded as 'simple' plants, it is worth recognising that bryophytes are a hugely successful group, survive in a spectacular array of habitats - including some of the most extreme environments on Earth - and have some remarkable strategies for dealing with environmental stress, including the ability to lie dormant during drought and then be resurrected when wet conditions arrive again.

The UK is one of the best places in Europe for bryophyte diversity, thanks especially to the copious rain we receive from the Atlantic! There are around 760 moss species in the UK, 300 liverwort species and four hornwort species, a considerable number of them endemic (found nowhere else on Earth). Hertfordshire, like many of the UK's eastern counties, has a relatively low bryophyte diversity (mainly due to a lack of precipitation). There is nonetheless a diversity of bryophytes present which often surprises (and perhaps intimidates!) newcomers to this field.

Many bryophyte species are fussy in their habitat requirements, so are good indicators of environmental conditions including soil pH, air quality and water purity. Some are slow to colonise new sites so can act as reasonably reliable ancient woodland indicators. Although little is known about bryophytes' ecological interactions, they appear to be important as a food source and habitat for numerous animal species, including a substantial number of threatened insect species. More generally, bryophytes are 'pioneers' - they are often the first colonists of bare soil, rock and bark, providing the foundation for more complex ecosystems to form.

There are a few technical terms regarding bryophyte anatomy that crop up in this report. The main leafy part of bryophytes is unusual in having half the 'normal' number of chromosomes: this is called the *gametophyte* because it produces the gametes (sperm and egg cells). When gametes undergo fertilisation they produce the *sporophyte*, often on a stalk that sticks out from the gametophyte, which has its chromosomes in pairs. The sporophyte is so-called because it has a capsule at its tip that releases spores. These spores will form new gametophytes when they land on a suitable substrate, beginning the life cycle again. Some bryophytes also reproduce clonally via leaf-generated propagules called *gemmae* or from tubers in amongst their rhizoids.



Some technical terms used by bryologists to describe parts of a bryophyte (a generic moss in this case). The inset photo shows a thalloid (flap-like) liverwort. This moss would be referred to as 'fruiting' because there is a sporophyte growing from the gametophyte.

The locality and habitats of St Lawrence Church

St Lawrence Church and the 4.5-acre churchyard surrounding it are located just off the main road through Bovington. The churchyard is the second largest (but the largest open churchyard) in Hertfordshire. The church in its current state is a Victorian makeover from 1845, but there has probably been a place of worship on this site since at least 1200.

Grassland is the dominant habitat of the churchyard. Judging by the bryophyte communities present, the soil seems to be neutral to slightly acidic. Areas near the conifers planted all around the edge of the churchyard will have become more acidic from needle-fall. Other habitats include the boundary brick wall, granite gravel paths, areas of bare disturbed soil such as anthills, deciduous trees, rotten tree stumps and logs, and the flint-walled church itself.

THE SURVEY

Methodology

I surveyed the churchyard on 8th March 2019, spending 2 hours surveying with Sue Miller before continuing solo for another 2 hours 20 minutes, covering the majority of the churchyard recording all bryophyte species observed. The weather was sunny to begin with, turning cloudy later, with a slight chill in the air. Most species were determined in the field, but I took some samples home to determine microscopically. Bryophyte records from the churchyard are to be sent to the county bryophytes recorder for the Hertfordshire Natural History Society, Agneta Burton.

Summary of results

I recorded 49 bryophyte species in total, including 46 moss species and 3 liverwort species (see Appendix), though there are likely to be more species present that went undetected by this survey. For comparison with nearby churchyards, St Paul's in Chipperfield yielded 46 moss and 8 liverwort species, whilst Holy Cross in Sarratt turned up 38 moss and 2 liverwort species. St Lawrence therefore appears to be reasonably diverse for bryophytes – Chipperfield sets a high standard – though it is much the largest of these three churchyards. A major difference between Chipperfield and Bovington is in the liverwort species total: St Paul's had a relatively shady, damp feel to it, which presumably makes it more popular with liverworts. Many of these liverworts, and a greater proportion of the mosses, were epiphytic in Chipperfield, whereas epiphytes were relatively scarce at St Lawrence. As was clear at Sarratt, bare disturbed earth in St Lawrence churchyard proved to support a particularly diverse bryophyte assemblage.

GUIDED TOUR

The following guided tour of St Lawrence Church's bryological highlights is structured according to the main bryophyte habitats found at the site.

The church

Bryophytes are not incapable of growing on vertical surfaces, but on church walls are more likely to be found on sloping or horizontal surfaces. Mosses could be found on a chamfered ledge that runs all around the church, as well as copings around the main porch. It would be interesting to study how the bryophyte communities of church walls vary depending on aspect – I got a sense that the sunny south side of the church had a different community to the shadier, damper north side.



The chamfered limestone ledge running around the church walls is very mossy in places.



The stone slab bearing the boot-scraper by the main porch is particularly mossy. It is probably quite damp and gets occasional loading of nutrients!



Two classic cushion-forming mosses of calcareous rock, on a sloped porch coping: Grey-cushioned *Grimmia pulvinata*, with its sporophytes arching back into the furry-looking cushion, and Thickpoint *Grimmia schistidium crassipilum*, with darker, spiky-looking cushions and reddish capsules.



Bright yellow-green cushions of Soft-tufted Beard-moss *Didymodon vinealis* on the chamfered ledge, with some fruiting Wall Screw-moss *Tortula muralis* in the background on the right.



Another typical moss of calcareous church walls is Revolute Beard-moss *Pseudocrossidium revolutum*, here growing on the chamfered ledge. Although not obvious from this photograph, the leaf margins are rolled back like little scrolls – a good ID feature for this species.



A number of mossy patches on the church walls looked distinctly 'mouldy'. Closer inspection reveals that these cushions have been invaded by the lichen *Bilimbia sabuletorum*, a specialist at growing on moss.



This *Bilimbia*-encrusted moss seems to be more lichen than moss! The bulbous black fruiting bodies of the lichen are clearly visible.



Another lichen growing happily on moss! This one in amongst Soft-tufted Beard-moss *Didymodon vinealis* is a so-called 'jelly lichen' (whose algal partner is the cyanobacterium *Nostoc*), probably *Collema tenax*, which looks like little blown-up rubber gloves.

Grassland

Grassland is the dominant habitat of the churchyard, though it could equally be called 'mossland'! Bryophytes here are represented largely by *pleurocarpous* (mat-forming) rather than *acrocarpous* (cushion-forming) mosses.



One of the first clues as to the presence of bryophytes in grassland is lighter yellow-green patches in amongst the darker grass. In this photo, taken near the tarmac path in the southern corner of the churchyard, the patches comprise Whitish Feather-moss *Brachythecium albicans*, often an indicator of more acidic soil.



A close-up showing the pale string-like shoots of Whitish Feather-moss *Brachythecium albicans*.



In this case – one of the designated wildlife areas on the north-eastern side of the churchyard - the yellow patches in the foreground signify a combination of three classic lawn mosses: Springy Turf-moss *Rhytidiadelphus squarrosus*, Pointed Spear-moss *Calliergonella cuspidata* and Neat Feather-moss *Pseudoscleropodium purum*.



The bane of gardeners, Springy Turf-moss *Rhytidiadelphus squarrosus*, with its red stems and kinked leaves.



The smooth, podgy-looking shoots of Neat Feather-moss *Pseudoscleropodium purum*.



Neat Feather-moss is particularly rampant in amongst the Heather patches.



An example of an acrocarpous moss in amongst all the grassland pleurocarps: a fruiting population of Common Smoothcap *Atrichum undulatum*, with distinctively wavy leaves.

Disturbed soil

Areas of bare, disturbed soil may quickly become colonised by a set of ruderal, often ephemeral, and often very small mosses. It is rewarding to get to grips with this bryophyte community – many of its members look exquisite under a hand lens (or even better, a stereo microscope), with relatively large, neat, ovoid or spherical capsules, or bright green gemmae in the leaf axils, or strikingly red tubers in amongst the rhizoids. Anthills are especially good places to hunt for tiny ephemerals. As in the recently surveyed Sarratt churchyard, anthills at St Lawrence did not disappoint.



The ubiquitous Redshank *Ceratodon purpureus* living up to its name, fruiting abundantly on a patch of bare soil and showing off its deep red setae.



Patches of disturbed earth on this grassy bank in the eastern corner of the churchyard support a surprisingly diverse community of tiny ruderal bryophytes. A good example of where a hand lens comes in handy...



Believe it or not, there are at least six moss species present in this photo, including the ruderal species Common Pottia *Tortula truncata* with brown urn-shaped capsules, Silver-moss *Bryum argenteum* (whitish shoots in the centre of the photo), Yellow Thread-moss *Pohlia lutescens*, Crimson-tuber Thread-moss *Bryum rubens* and Taper-leaved Earth-moss *Pleuridium acuminatum*, plus a few straggly shoots of Common Feather-moss *Kindbergia praelonga* encroaching from the margins. Thanks to diminutive size of the species involved, this remarkably diverse patch of bryophytes can fit into the area of a credit card!



Another tiny ruderal moss on exposed soil of grassy banks, Cuspidate Earth-moss *Phascum cuspidatum* (patches in the foreground). It has sessile capsules which are often hidden by the surrounding leaves.



Anthills, such as this one in the north-eastern portion of the churchyard, are good places to hunt for tiny ephemeral mosses.



The pretty, bright green clusters of sessile capsules and long thin leaves that belong to Taper-leaved Earth-moss *Pleuridium acuminatum*, on the top of an anthill. This ephemeral species was also recently found on anthills in nearby Holy Cross churchyard, Sarratt.

Graves

Graves and gravestones provide a range of surfaces and microclimates for bryophytes. Presumably, many of the species growing in these habitats would be considerably rarer were it not for all the rock humans have exposed above ground in the form of gravestones and other built structures.



Anomalous Bristle-moss *Orthotrichum anomalum*, an acrocarpous moss common on calcareous gravestones in the eastern part of the churchyard.



Some fine examples of Anomalous Bristle-moss *Orthotrichum anomalum*, all fruiting copiously, on a limestone memorial. The moss gets its common name from the fact that it grows on rock whereas most of the other members of its genus grow on trees.



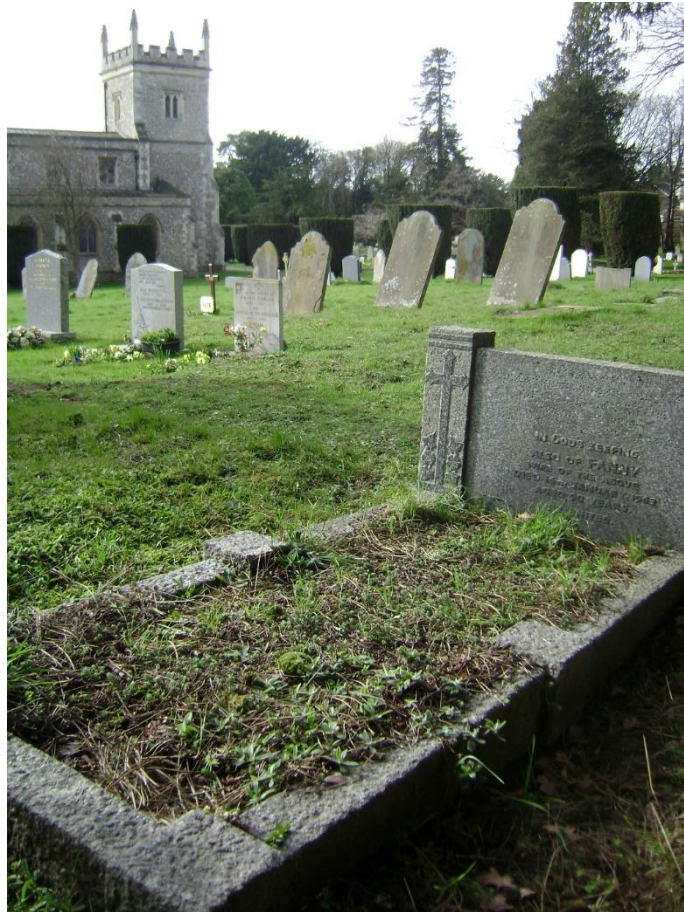
A fruiting cushion of Intermediate Screw-moss *Syntrichia intermedia*, another moss typical of limestone graves.



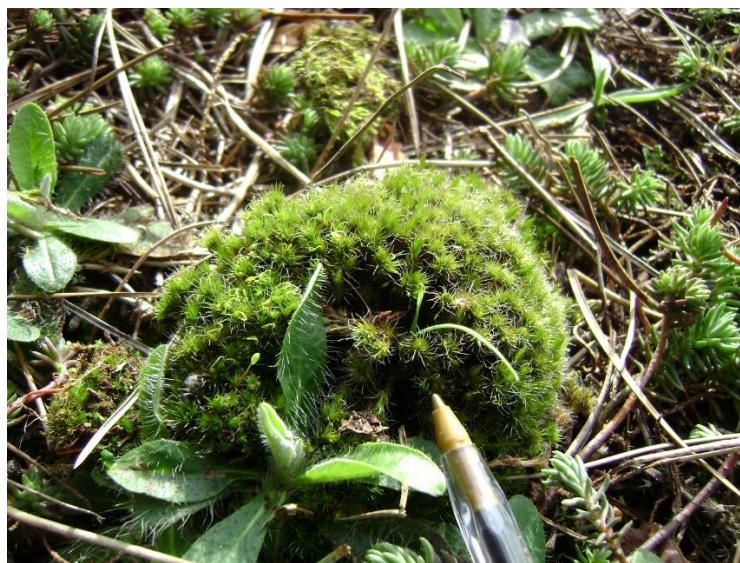
Horizontal beds of earth or gravel over graves can sometimes turn up some unusual bryophyte species, but there was nothing too out of the ordinary here. It was nice to see some Yellow Feather-moss *Homalothecium lutescens* on this bed in the eastern corner of the churchyard, visible as the yellowish-green patches on the near side of the bed. Horizontal grave beds with a calcareous element seem to be favourite habitats of this species in churchyards.



A close-up of Yellow Feather-moss *Homalothecium lutescens*. It is characterised by longly tapering, plaited leaves on straight-ish branches.



This grave bed north of the church has a more acidic feel to it, not least because it is affected by needle-fall from overhanging pines. It is covered in a *Sedum* of some sort. I felt inclined to hunt for acidophiles such as Juniper Haircap *Polytrichum juniperinum* (to no avail), which has turned up in similar situations elsewhere, e.g. at Wheathampstead. An acrocarp nonetheless caught my eye...



...the invasive Heath Star-moss *Campylopus introflexus* (boo, hiss). This specimen confused me for a while because it was fruiting, which is uncommon outside of the north and west of the UK.



For some reason, White-tipped Bristle-moss *Orthotrichum diaphanum* (a species equally at home on tree bark) had decided to make this single area of paving in the northern corner of the churchyard its home. It is growing on the mortar between the paving slabs. White-tipped Bristle-moss is a nutrient-loving species, so nutrient enrichment might play a part, though where it's coming from I'm unsure.



A close-up of White-tipped Bristle-moss *Orthotrichum diaphanum*, revealing abundant capsules and long white hair-points at its leaf tips.



No, this structure in the southern corner of the churchyard isn't a grave – it's a drain cover mounted on a conglomerate block. However, it's equally popular with saxicolous bryophytes.



Cylindric Beard-moss *Didymodon insulanus* on the conglomerate block surrounding the drain cover, with its leaves curving in a distinctive spiral around the stem.

The boundary wall

Brick walls surrounding churchyards can be fruitful places for bryophytes, though the wall at St Lawrence wasn't spectacularly mossy. The far northern corner of the wall had recently been replaced following an accident, and this was one of the mossiest sections. There was a distinct drop-off in bryophyte abundance either side of the replaced wall top. Perhaps the replaced bricks had been lying somewhere relatively damp before being re-mounted?



A recently replaced section of the boundary wall at the far northern corner of the churchyard. Mosses are frequent on the curved brick top. Wall Screw-moss *Tortula muralis* is especially abundant, and its dense stands of sporophytes can look like a golden haze when sunlight shines through them.



The fat, drooping capsules of Capillary Thread-moss *Bryum capillare* on the boundary wall's northern corner.



A bright green cushion of Lesser Bird's-claw Beard-moss *Barbula convoluta* var. *sardea* on the northern corner of the boundary wall. Note the very wavy leaves which distinguish this variety. It is surrounded by fruiting cushions of Wall Screw-moss *Tortula muralis*.

Gravel and tarmac paths

Even the most mundane of habitats can prove popular with bryophytes, and often support a surprising diversity of species. The edges of gravel and tarmac paths, where nutrients may collect and there is less footfall, are a case in point.



Granite gravel paths run around the churchyard. Bonfire-moss *Funaria hygrometrica*, a common nutrient-loving colonist of old bonfire sites, is common at the path edges in the southern portion of the churchyard, and abounds underneath a wooden bench. This fruiting colony shows off the graceful swan-neck setae.



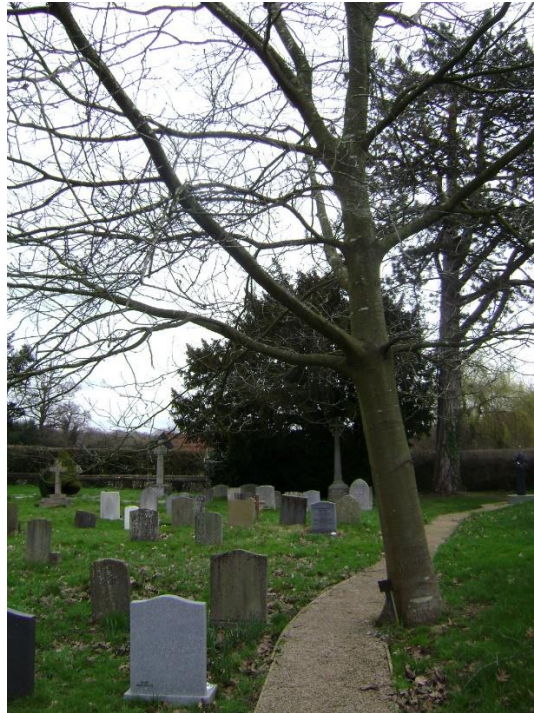
Another nutriphile found at the edges of gravel paths: the well-named Silver-moss *Bryum argenteum*. Its neat thread-like shoots catch the light in such a way that they glint silver.



Tarmac might seem a forbidding bryophyte habitat, but quite the contrary – particularly where water and nutrients are concentrated, mosses often flourish on this substrate. This tarmac surface at the west side of the church underneath an information board supports species such as Cylindric Beard-moss *Didymodon insulanus* and Small-bud Bryum *Bryum gemmiferum*.

Living trees

Most of the trees at St Lawrence are coniferous and therefore rather hostile to bryophytes. Deciduous trees can add a great variety of epiphytic bryophyte species to churchyards, but the examples at St Lawrence tended to be rather epiphyte-poor. Nonetheless, just as I was about to leave the churchyard, I realised I hadn't paid a visit to a small Oak just west of the church. This small tree alone added four species to the churchyard list, including two of the churchyard's three liverworts.



This non-native Oak in the southern portion of the churchyard was epiphyte-poor, supporting only a few scraps of Wood Bristle-moss *Orthotrichum affine*.



A large Cherry in the north-western part of the churchyard had more bryophyte interest: its base was coated in Mouse-tail Moss *Isotheceium myosuroides*, a species often indicative of ancient woodland.



A grey-green mat of Mouse-tail Moss *Isoetes myosuroides* on the base of a large Cherry tree. It has a tree-like growth form itself, with a robust main stem that makes it arch upwards from the substrate.



This Oak just west of the church redeemed the churchyard's epiphyte credentials.



Wood Bristle-moss *Orthotrichum affine* on the small Oak - probably the commonest epiphyte in the UK.



A Pincushion species *Ulota* sp. Although it is fruiting, the capsules are too immature to enable identification to species level.



One of the churchyard's select set of liverworts, Forked Veilwort *Metzgeria furcata*, on the small Oak. This thalloid (flap-like) liverwort reminds me of snake tongues.



One of the best examples of Silky Wall Feather-moss *Homalothecium sericeum* in the churchyard was not on a wall or gravestone, but rather on the small Oak! Its silky yellow-green shoots curve upwards in a distinctive way when dry.

Rotten logs and stumps

When logs and tree stumps are left to rot, they can develop a different and distinctive acid-loving bryophyte community. Such habitats were rare at St Lawrence, but those present added at least three acidophilic species to the churchyard flora.



This rotten tree stump in the north-western portion of the churchyard supports an acid-loving bryophyte community.



One of the churchyard's three liverwort species, Variable-leaved Crestwort *Lophocolea heterophylla*, is right at home on rotting wood.



An archetypal acid-lover, Common Pincushion *Dicranoweisia cirrata*, on the rotten stump. It has declined markedly in recent decades as sulphur dioxide pollution has diminished.



Rotting wood presumably increases the acidity of the surrounding soil. The presence of Silky Forklet-moss *Dicranella heteromalla* beside the rotten tree stump supports this notion.

MANAGEMENT RECOMMENDATIONS

Bryophyte conservation is rarely factored into management plans. The great bryologist Mark Hill, whom I met on excursions in Cambridgeshire, is of the opinion that most bryophytes are 'bonus extras' that should be allowed to come and go of their own accord, and not managed for as such; I agree with Mark to some extent. Business-as-usual conservation interventions could automatically conserve a good variety of bryophytes. It's possible that managing exclusively for bryophytes could threaten other taxonomic groups and species of conservation concern, but with that said, there are some easy 'quick wins' for generally supporting bryophytes compatible with existing management plans and indeed beneficial for many other groups. Rare and/or threatened bryophyte species should also be considered for more targeted conservation.

There are three general principles that the gardeners of St Lawrence Church could take into account to conserve its bryophytes.

1) Maintain existing bryophyte-rich habitats

A straightforward conservation measure is to maintain and avoid too much disturbance (including 'tidying'!) to the habitats with highest bryophyte diversity, including:

- ledges and copings on the church walls;
- gravestones, memorials and beds over graves;
- edges of gravel and tarmac paths;
- trees rich in epiphytes;
- rotting logs and tree stumps, which are also good for fungi and deadwood invertebrates.

Disturbed earth supports some of the richest bryophyte communities in the churchyard, but these communities depend on disturbance by nature and should easily recolonise following new disturbance. There is probably little point in carefully preserving existing bryophyte-rich anthills etc., especially since they are already being pecked up by Green Woodpeckers!

2) Introduce new bryophyte habitats

If new trees are ever planted in the churchyard, it is worth bearing in mind that (especially rough-barked) deciduous trees are more favourable for epiphytic bryophytes, and wildlife generally. Leaving more logs and stumps to rot would encourage a range of acidophilic bryophytes, as well as deadwood invertebrates and fungi.

3) Remove invasive moss

We are used to hearing about invasive species such as Giant Hogweed and Grey Squirrels, but there are also such things as invasive bryophytes! Invasives are defined as non-native species which cause significant ecological or socio-economic harm. There is a small number of invasive bryophyte species in the UK. Although they have no major socio-economic impacts, these invaders tend to outcompete and displace our native bryophyte and lichen species.

Heath Star-moss *Campylopus introflexus* is a species native to North America which was first discovered in the UK in 1941 and has since spread rapidly across the whole of the country, aided by its ability to reproduce clonally via its detachable stem tips. Sporophytes are recorded mainly in the north and west, so after finding a fruiting cushion at St Lawrence I queried this with Agneta Burton, who commented that “[Mark Hill and Chris Preston’s recent bryophyte flora of Cambridgeshire] states that *C. introflexus* capsules are occasional (found in 11% of tetrads), so it may be adapting to drier conditions in its production of capsules - certainly it has spread extraordinarily "well" from its original UK habitat of peatlands”.

The ecological impacts of Heath Star-moss have been well-documented in the Netherlands: the moss excludes native bryophytes and lichens, and has also been noted to inhibit Heather germination and alter invertebrate and bird communities via bottom-up processes (Klinck 2009).

Although it is not a legal requirement to remove Heath Star-moss, the churchyard gardeners might wish to consider doing so to protect native bryophytes and lichens, as well as associated invertebrates. Total eradication is probably impossible, and the moss is increasingly frequent in the wider landscape, but it can be kept in check by removing and destroying (e.g. by burning on a bonfire) obvious patches of it. However, care should be taken a) not to accidentally remove native bryophytes or too many other species present in amongst the Heath Star-moss, and b) not to accidentally spread shoot tip propagules during the removal process.

REFERENCES

Klinck J (2009) The alien invasive moss *Campylopus introflexus* in the Danish coastal dune system. Master thesis, Department of Biology, Copenhagen University.

APPENDIX

Full bryophyte species list

The following tables list all bryophyte species recorded on 8th March 2019, including the habitat(s) where they were recorded. All records, including grid references, will be sent separately to Agneta Burton, the county bryophytes recorder for the Hertfordshire Natural History Society.

Mosses

English name	Scientific name	Population status/distribution	Habitat
Creeping Feather-moss	<i>Amblystegium serpens</i>	Occasional	Stone
Common Smoothcap	<i>Atrichum undulatum</i>	Locally frequent	Soil
Lesser Bird’s-claw Beard-moss	<i>Barbula convoluta</i> var. <i>convoluta</i>	Occasional	Edge of gravel path
	<i>Barbula convoluta</i> var. <i>sardoa</i>	Rare	Boundary wall
Bird’s-claw Beard-moss	<i>Barbula unguiculata</i>	Occasional	Stone
Whitish Feather-moss	<i>Brachythecium albicans</i>	Abundant	Soil in grassland

Rought-stalked Feather-moss	<i>Brachythecium rutabulum</i>	Abundant	Various
Silver-moss	<i>Bryum argenteum</i>	Frequent	Soil on bank
Capillary Thread-moss	<i>Bryum capillare</i>	Frequent	Church wall
Bicoloured Bryum	<i>Bryum dichotomum</i>	Occasional	Edge of gravel path
Small-bud Bryum	<i>Bryum gemmiferum</i>	Occasional	Gravel and tarmac paths
Crimson-tuber Thread-moss	<i>Bryum rubens</i>	Occasional	Soil on bank
Pointed Spear-moss	<i>Calliergonella cuspidata</i>	Abundant	Soil in grassland
Heath Star-moss	<i>Campylopus introflexus</i>	Occasional	E.g. gravel grave bed
Redshank	<i>Ceratodon purpureus</i>	Locally abundant	Disturbed (iron-rich?) soil
Silky Forklet-moss	<i>Dicranella heteromalla</i>	Rare	Soil by rotten tree stump
Common Pincushion	<i>Dicranoweisia cirrata</i>	Locally abundant	Rotten tree stump
Cylindric Beard-moss	<i>Didymodon insulanus</i>	Abundant	Conglomerate block surrounding manhole cover
Nicholson's Beard-moss	<i>Didymodon nicholsonii</i>	Frequent	Tarmac path
Rigid Beard-moss	<i>Didymodon rigidulus</i>	Occasional	Boundary wall
Soft-tufted Beard-moss	<i>Didymodon vinealis</i>	Locally frequent	South wall of church
Bonfire-moss	<i>Funaria hygrometrica</i>	Locally abundant	Edge of gravel path
Grey-cushioned Grimmia	<i>Grimmia pulvinata</i>	Abundant	Stone
Yellow Feather-moss	<i>Homalothecium lutescens</i>	Locally abundant	Gravelly grave bed
Silky Wall Feather-moss	<i>Homalothecium sericeum</i>	Local	Oak
Cypress-leaved Plait-moss	<i>Hypnum cupressiforme</i>	Frequent	E.g. dead <i>Robinia</i>
Common Feather-moss	<i>Kindbergia praelonga</i>	Abundant	Soil
Wood Bristle-moss	<i>Orthotrichum affine</i>	Frequent	Oak
Anomalous Bristle-moss	<i>Orthotrichum anomalum</i>	Frequent	Gravestone
White-tipped Bristle-moss	<i>Orthotrichum diaphanum</i>	Locally frequent	Mortar on horizontal paving
Cuspidate Earth-moss	<i>Phascum cuspidatum</i>	Locally frequent	Soil on bank
Hart's-tongue Thyme-moss	<i>Plagiomnium undulatum</i>	Rare	Soil
Taper-leaved Earth-moss	<i>Pleuroidium acuminatum</i>	Occasional	Anthill on bank of Pill Pond
Yellow Thread-moss	<i>Pohlia lutescens</i>	Occasional	Soil on bank
Hornschuch's Beard-moss	<i>Pseudocrossidium hornschuchianum</i>	Occasional	Edge of granite gravel path
Revolute Beard-moss	<i>Pseudocrossidium revolutum</i>	Rare	South wall of church
Neat Feather-moss	<i>Pseudoscleropodium purum</i>	Abundant	Soil in grassland
Clustered Feather-moss	<i>Rhynchostegium confertum</i>	Abundant	Stone/bark
Springy Turf-moss	<i>Rhytidiadelphus squarrosus</i>	Abundant	Soil in grassland
Thickpoint Grimmia	<i>Schistidium crassipilum</i>	Frequent	Stone on church porch
Intermediate Screw-moss	<i>Syntrichia intermedia</i>	Occasional	Limestone
Great Hairy Screw-moss	<i>Syntrichia ruralis</i> ssp. <i>ruralis</i>	Rare	Soil beside dead <i>Robinia</i>

Blunt-fruited Pottia	<i>Tortula modica</i>	Rare	Soil
Wall Screw-moss	<i>Tortula muralis</i>	Abundant	Church wall
Common Pottia	<i>Tortula truncata</i>	Occasional	Soil on bank
Pincushion species	<i>Ulota</i> sp.	Rare	Oak
Green Yoke-moss	<i>Zygodon viridissimus</i>	Locally frequent	North wall of church

Liverworts

English name	Scientific name	Population status/distribution	Habitat
Dilated Scalewort	<i>Frullania dilatata</i>	Rare	Oak
Variable-leaved Crestwort	<i>Lophocolea heterophylla</i>	Locally abundant	Rotten tree stump
Forked Veilwort	<i>Metzgeria furcata</i>	Rare	Oak