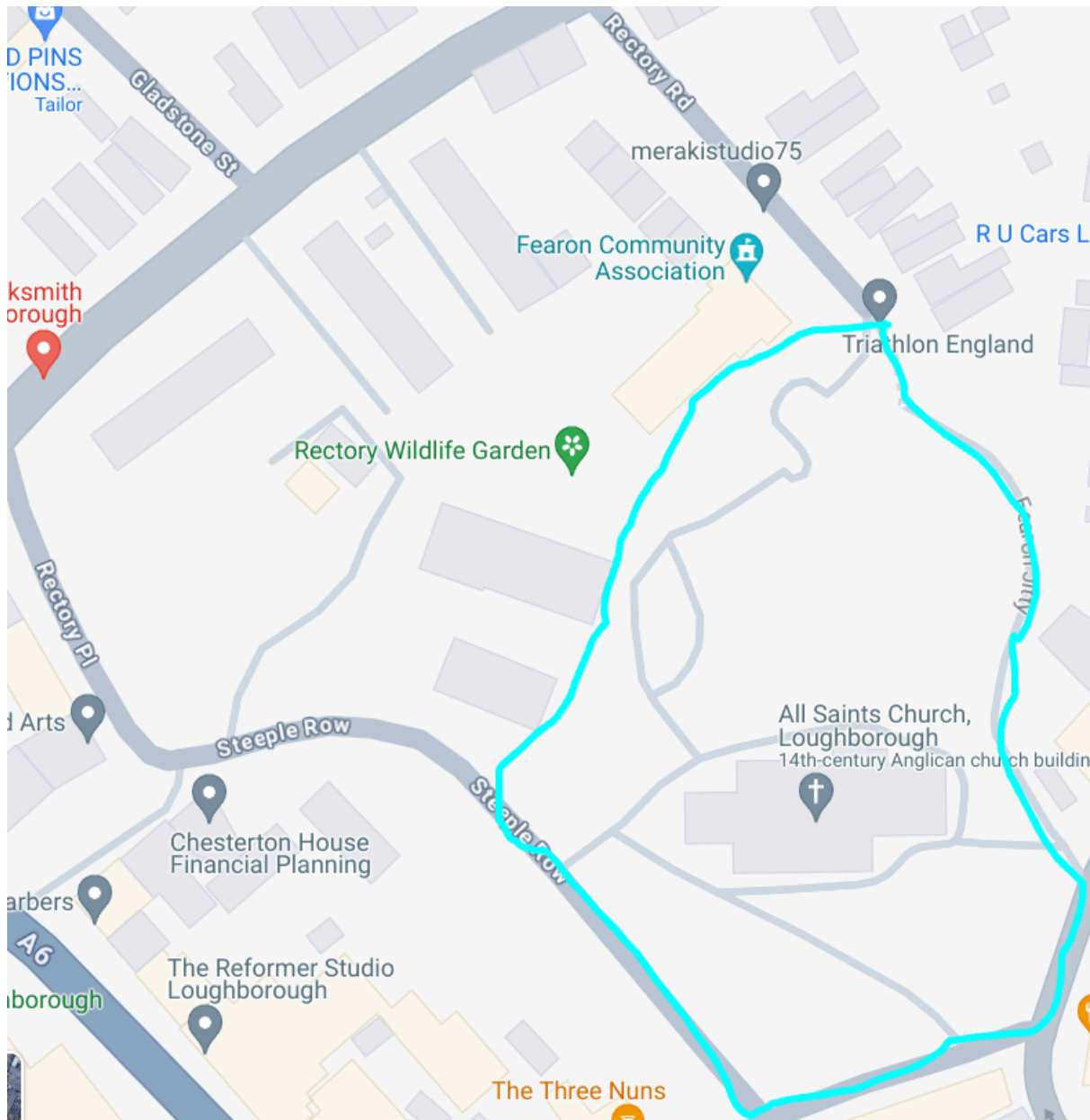


Flora, Fauna and Ecological Connections in All Saints With Holy Trinity Loughborough Parish Green



The line I've drawn on this map indicates the approximate area I'm looking at. It doesn't include Incredible Edibles or most of the Rectory Wildlife Garden, but it does include the whole graveyard and the green space next to Fearon Hall. It also includes the walls around the grounds and the verge beyond that because there are some interesting plants there.

There are several types of habitat, including the exterior of the church building, its interior, the lawns, flower beds, gravestones, walls and paved and tarmac areas.

So far, I've got the following:

Wild plants and possible escapes: *Plantago lanceolata*

Plantago major

Urtica dioica - dioecious, hence the name. Remarkably useful as a green dye and source of textile fibre, high in iron, vitamin C, choline, histamine, formic acid, silica and others. Root can be used for benign prostatic hypertrophy, anti-allergic, useful topically for seropositive arthritides, galactagogue, increase uric acid excretion, very edible and nutritious - can't be eaten after May. Nettles are truly a gift from God in my opinion. However, *U. urens* is more potent. Flowers June to September.

Stellaria media - good source of vitamin C and useful for eczema when the patient is allergic to asteraceae plants.

Platanus ? x acerifolia - London plane tree.

Fraxinus excelsior? - Ash.

Sambucus nigra - elder. Currently quite small and in various places near the memorial garden.

Betula alba - silver birch. At least two.

Taxus baccata - yew. I'm guessing this has been here as long as the church but it's currently very cut back, on the south side of the church in a thicket with several other plants. Completely toxic. Contains a compound called taxol which disrupts mitotic spindles and is therefore used against cancer. A gymnosperm, very long-lived.

Speaking of which:

Narcissus - daffodils. Toxic again, also anti-neoplastic.

Bellis perennis - asteraceae, used for port wine stain birthmarks.

Achillea millefolium - said to be the herb with the most uses of all. There are stories of herbalists who only ever prescribed this remedy, but this is also said of other species. I personally don't rate it. It tends to equalise circulation, is an arterial circulatory stimulant and is high in both tannins and salicin (similar to aspirin). Dried stalks are used to divine the Yi Jing. Can be used to curdle milk for cheese. Flowers June to October.

Symphytum officinale - banned for internal use due to pyrrolizidine alkaloids which cause liver damage. In any case, difficult to prepare as a tincture due to being a liquid manure, but useful topically for injuries where the circulation is relatively low such as fractures due to allantoin content. Contains a B12-like substance which is unfortunately not actually the vitamin itself. A dynamic accumulator - accumulates potassium in the soil it grows in. Around a metre high. Flowers May-July.

Ilex aquifolium - some of this seems to have been planted deliberately, others not. A usually dioecious plant (separate sexes), mildly toxic, contains xanthines but not caffeine in this European species. This is the only British holly.

Hedera helix - growing on the stonework and tree trunks. High in saponins, usable as shampoo and to wash silk. Poisonous. Flowers September to November. Roots adhere with a cement-like substance. Pollinated by flies and wasps.

Prunus sp - several currently small trees planted on the east side of the path from the south door.

Mahonia aquifolium

Senecio jacobaea - flowers June to October, eaten by Cinnabar moth caterpillars, up to 120 cm tall, tends to stand conspicuously above other plants due to being poisonous.

Asplenium scolopendrium

Asplenium ruta-muraria?

Rosa sp (canina?)

Rubus fruticosus - several hundred microspecies exist usually unidentifiable except by experts. Obviously produce edible fruit, up to 150 cm high, flowers June to August.

Buddleja americana? Definitely a Buddleia but unclear what species (because of my ignorance, not because it's generally hard to identify). Growing on the ground near the east side of the church.

Pseudofumaria lutea - this is the plant growing on the outside of the southern stone wall which looks superficially like wall rue.

Possibly:

Grimmia pulvinata - a common moss.

Cultivated plants:

Cyclamen sp

Galanthus - snowdrop.

Hyacinthus non-scripta - English bluebells, easily hybridised but in this case not. The bulbs are a source of very strong glue which should not, however, be exploited due to their situation, and the pigment in the petals is a pH indicator.

Cotoneaster

Veronica odora - mountain box

Iris foetidissima - stinking iris

Digitalis purpurea - foxglove. Contrary to popular belief, although this is the source of a cardiac glycoside and therefore highly toxic, herbalists do not use this plant. We do, however, use other plants containing cardiac glycosides.

Prunus laurocerasus - cherry laurel.

Rubus ulmifolius - elmleaf blackberry.

There are also liverworts, mainly around the laid-down tombstones southeast of the building but also on the nearby wall. I'm guessing this is *Marchantia polymorpha*, as this is at least locally common, but I don't know how to identify liverworts. It's found between the stones. The species is monoecious. My perception is that liverworts have either become more common since the mid-'80s This might be to do with herbicides, which often don't work against bryophytes. This may not apply where it is, but this species is important in preventing soil erosion. However, it often precedes lichen, which might apply in that location. The subspecies would be

ruderalis. It's a typical churchyard subspecies. It may be increasing in range or that may be due to more accurate recording. It's economically significant as an invasive plant in nurseries.

There are some Apiaceae and a Ranunculus species, probably lesser celandine (*R. ficaria*) - this is used for piles.

It's currently hard to identify a lot of the species because it's winter.

Mosses, lichens and algae.

I probably can't identify many species of herbs, and my knowledge of trees is very limited because I don't use barks on principle, for fear of ring-barking.

How much is already known about the ecology of the church and churchyard? How much control do we have over it? How much is down to Charnwood BC and how much the Church? What are the customs and regulations regarding the placement of gravestones?

Involvement of bat conservation groups?

Has a survey been done of the lichen?

Some lichen species are only found in churchyards.

Who is responsible for what as far as wildlife and ecology in the churchyard is concerned? I'm not by any means an expert in this and don't want to tread on anyone's toes.

Is there tension between conservation of wildlife and conservation of gravestones?

Do other churches in town or further afield in Nottinghamshire or Charnwood have information about their own mosses, algae and lichen?

Tardigrades, nematodes and possibly rotifers. Slugs and snails.

Does anyone do the gardening? What about pesticides? What other options exist for pest control?

Presumably there are rodents.

Ants, spiders and earthworms. Flatworms - possible threat. New Zealand predatory flatworms eat earthworms and therefore put soil health at risk in some places. They tend to be introduced from plants originating there, such as the cabbage tree in the memorial garden.

Lichens: about three hundred species of lichen in Britain are only found in churchyards. Individual cemeteries have up to a hundred species in them and constitute sanctuaries for lichen. Different types of stone from which tombstones are made are suitable for different species of lichen. Those which grow on the north sides of objects are often different species than those growing on the south sides.

Lichen provides shelter for small animals and food for moths. However, it only grows about a millimetre per decade, so presumably they haven't got very big appetites.

Ivy and brambles growing over gravestones can deprive lichens of light and kill them. Weathering from lichen is not usually more severe than natural weathering, although mosses can retain moisture and contribute to it.

Some of the lichen seem to be quite young as they are barely visible.

Possible species of lichen:

Lecanora sp - there are more than eighty species of this which grow in Britain.

Xanthoria parietina - If this is present, it suggests there are mineral salts in the atmosphere.

Possible alga:

Pleurococcus vulgaris - this seems to be present on some of the tombstones, bark and the masonry. It's a green alga.

Which brings me to:

Mosses.

Animals living within moss include nematodes, tardigrades, rotifers, gastrotricha and mites. Moss retains moisture and is an early stage in the formation of soil, since that moisture encourages erosion of rock and provides water for other plants to begin to colonise a surface. This presumably means that although to some extent it's okay to leave mosses on a stone surface such as masonry, a wall or a tombstone, this will eventually turn into soil. There are a couple of moss-covered patches of ground on one side of the churchyard next to each other. Moss in particular regulates the temperature of the medium it grows on, so frozen ground underneath moss will take longer to thaw and when growing on tree roots prevents them from overheating. It can also keep soil warm when it's cold. Hence it can act as shelter for small animals.

There are also bryophilous fungi. These are fungi which live on or under mosses and liverworts. They tend to be cup fungi. Some of them are symbiotic with liverworts. It can be assumed that the mosses generally are infected by hyphae, but they are hard to identify unless they develop fruiting bodies.

Probable animals living in mosses:

There are likely to be five different major types of small animal living in the moss. It might be possible to see these by soaking a patch of moss in rain water for twenty

minutes, wringing it out and leaving the sediment to settle out before looking at it on a microscope slide. These are: mites, rotifers, tardigrades, chaetognaths and nematodes.

Oribatida - "Beetle mites". These just look like beetles when magnified. They're not actually linked to beetles in any other way. They're likely to be all over, not just in moss, but anywhere which is damp. They're from 100 microns to three millimetres long.

Rotifers: Related to nematodes, these are small animals who feed by creating vortices in the water they live in. Most are less than 500 microns in length. Due to the cell constancy, they often have a hard shell called a lorica because they cannot recover from injuries. Their lifestyles are similar to those of larvae in other phyla except that they are ready to reproduce and don't become larger adult forms, and they're not related to phyla with larvae similar in form. They have adhesive feet at the ends of their bodies. Rotifers living in moss are bdelloid, a class characterised by two-wheeled coronae and the absence of a lorica. They move by creeping, are entirely female, and have no meiosis (the production of gametes with half the usual chromosome number). Due to their transient habitat, they can dry out and become dormant for long periods of time and can survive at a temperature of -200°C or up to 40°C. A quarter of their cells are nerve cells.

Gastrotricha are up to four millimetres long but usually much smaller. They lay eggs within a day of hatching and eat bacteria, protists and detritus. All freshwater gastrotricha, such as the ones likely to be living here, are chaetonotidans. They're covered in cilia which help them move along and are related to flatworms.

Nematodes: In population terms, this is the most common animal phylum of all, and is also a major phylum like arthropods and molluscs (chaetognaths and rotifers are minor phyla). There will be plenty of species of nematodes all over the churchyard and not just in the moss. They're basically unsegmented worms round in a cross-section and it's been said that if all we could see were nematodes, we'd basically see ghostly outlines of the scenery we already see, i.e. they're everywhere. They also have cell constancy and very few cells. Most of them look very similar. They eat moss, algae and fungi, and some of them attack the larvae of otherwise invasive beetle species and other pests.

A major nematode almost certainly found in the soil here is *Caenorhabditis elegans*. This spreads by its larval form infesting earthworms and insects, and leaving the animals' bodies after their deaths. They eat bacteria and are in turn eaten.

Liverworts tend to grow on the south-facing surfaces and mosses on the north near the church at ground level. This also applies to uneven surfaces oriented in an east-west direction.

Remembrance Garden:

Achillea filipendulina - may be a misidentification. If not, this should have yellow flowers in the summer. If not, the plant in question is likely to be *Achillea millefolium*. In terms of herbal medicine, Achillea is said to have more indications than any other plant, and is astringent, anti-inflammatory and stimulates and balances blood circulation. It can both cause and cure nosebleeds.

Tulipa gesneriana - Tulip.

Bergeria crassifolia - Elephant Ears.

Pentaglottis sempervirens - Green Alkanet

Stachys byzantina - Lamb's Ear. This is a tomentose (fluffy) plant closely related to betony.

Ajuga reptans - bugle. Not to be confused with bugleweed, this plant is growing in a pot and may therefore have been intentionally placed there, suggesting it's a memorial of some kind.

Cyclamen hederifolium - cyclamen.

Cordyline australis - cabbage tree. Actually a monocotyledon native to Aotearoa/New Zealand. Also known as the Torquay or Cornwall palm.

Magnolia stellata - Star Magnolia. A shrub. Likely to be pollinated by beetles.

Oxalis corniculata - creeping woodsorrel.

Geum urbanum - wood avens.

Galium aparine - cleavers. Lymphatic stimulant.

These last three are clearly self-seeded and often regarded as weeds.

Grasses:

Cynodon dactylon - dog grass. Although many grasses look very similar to me, so far as I can tell most of the grass on the parish lawn is of this species. An important forage grass for grazing animals. Used as a food plant by the Essex skipper, *Thymelicus lineola*.

Around gravestones:

Sonchus oleraceus - sow thistle. This is edible but bitter and is related to lettuce.

Geranium rotundifolium - roundleaf geranium.

There are both young and old yews, none of which are full-size trees. These plants are uniformly poisonous and anti-neoplastic, which they achieve by disrupting mitotic spindles. Along with *Viscum album* extracts, they're used in mainstream cancer chemotherapy. Yew trees are of course very long-lived, in the millennia. As well as this, *Taxus baccata*, on the north side there are:

Choisya ternata - Mexican orange. In the same family, Rutaceae, as *Citrus*, this is an evergreen shrub smelling of basil.

Buxus sempervirens - boxwood.

Viscum album (?) - Mistletoe. Appears to be growing in some of the trees next to Fearon Hall. Anti-neoplastic, hypotensive, but does so by damaging blood vessel endothelium.

Myrtus communis - Myrtle. Myrtle is related to Manuka, so honey produced from it may have similar properties.

Erigeron sp - a fleabane.

Capsella bursa-pastoris - shepherd's purse. In the cabbage family, this can be used as a stir-fry vegetable and has a fungus infecting it related to ergot which can be used for excessive flow during menstruation. It's clearly self-seeded.

Near the graves are:

Crocus tommasinianus - crocus.

Clinopodium nepeta - lesser calamint.

The gravestones seem to encourage the growth of young tree species but there are no more mature trees there.

Rectory garden:

Stereum rugosum - a common bracket fungus growing on wood. This is a guess, but the genus is probably correct.

Ilex aquifolium - Eurasian holly. Currently almost completely thornless. Holly is of course poisonous, and also dioecious - it has separate sexes - and is a source of xanthines (the active ingredients in coffee and chocolate) and saponins.

Araucaria araucana - Monkey puzzle tree. A very old genus dating back to the Jurassic

Anthriscus sylvestris - cow parsley.

Birds noted on the Great British Birdwatch, 12:50 pm - 1:50 pm, 28/1/24:

Crow: 11

Wood pigeon: 10

House sparrow: 1

Blackheaded gull: 17

Robin: 2

Rock dove: 1

Pied wagtail: 1

Blackbird: 16

Blue tit: 2

Suggestions:

- Herb spiral:



From

<https://transformativeadventures.org/2020/11/30/the-herb-spiral-an-adventure-that-transforms-your-gardening/>

A herb spiral is an efficient way of growing a wide variety of herbs in a small space. The design optimises light, shade and water requirements for all the species concerned, which are arranged in a particular way in a cairn with a spiral path centred from the top, which is watered. It occurs to me that we could use culinary herbs for the likes of bring and share lunches

- Mason bee straws.



Mason bee straws are hollow tubes arranged to face south with a diameter of 8 mm. They provide nesting space for the solitary mason bees who might otherwise drill holes in bricks to lay their eggs. The bees don't provide honey but are excellent pollinators. An alternative is to drill holes of that diameter in a block of wood.

- Lichen walk - Organised by the British Lichen Society, apparently in September. <https://britishlichensociety.org.uk/>
- Herb walk - September. This is set by the National Institute of Medical Herbalists and I have organised them in the past. The idea is to take those who are interested around a course and point out medicinal herbs to them, possibly recount related folklore and other facts. Since I may not be around in September, I'm offering to do this earlier.
- Big Butterfly Count: Those interested choose a site and a date in July or August. More information here:
<https://bigbutterflycount.butterfly-conservation.org/>
- Big Garden Birdwatch (see above). Organised by the RSPB in late winter. Web page here:
https://www.rspb.org.uk/whats-happening/big-garden-birdwatch?utm_source=adgoal_eu&utm_medium=affiliate&utm_campaign=rspb-uk-affiliate
- Wild flower garden: Quite straightforward, simply involves choosing a small area and seeding it with plants and it seems to overlap (or even be identical with) the next item.
<https://www.rhs.org.uk/lawns/creating-wildflower-meadows>
- Pollinator garden: Fearon Hall are apparently doing this right now.