



TOWARDS BIO-DIVERSITY
and sustainable conservation - in St John's churchyard, Old Malden

By occasionally allowing sheep in to graze the north churchyard, the soil would have been impoverished, producing the ideal conditions for a species-rich wildflower meadow. Today, to obtain the same result, the grass is strimmed, then taken away to a vast Compost Heap.

TOWARDS BIODIVERSITY AND CONSERVATION

After the London Ecological Unit's Survey in 2003 of our north churchyard's 'Conservation Area', I was asked to monitor changes in the 75 wild-plant species. This has been done for the ten years 2006-2016 and is reported on in the pages following.

The Report of the original Survey, compiled by the indefatigable local conservationist Barbara Webb, can be seen at the back of this folder. It suggested we choose a cutting regime to fit our 'Conservation Area', from three examples. Each involved cutting and clearing grass at least twice.

Conservation before 2003 had clearly been successful. On the strength of this success, we experimented - with a single cut. Sadly some areas became 98% choked by just two species of grass. Bio-diversity declined steadily. Four plant species became extinct in the north churchyard. That cannot be called conservation.



Unlike our 'Conservation Area', all our lawns and paths were cut four times before the Patronal Festival in June. Protected ragworts and bee orchids were strimmed round, meticulously. Hedges were thinned and made scrupulously square. Enormous effort, craftsmanship and care was expended there.

In parts of the churchyard where species have been choked out, the obvious first-aid remedy is to try two cuts. In the ten square metres marked out with string, the plan is to 'finger-mow' half, by hand. Missing plant-species that emerge there can then be recognised, nurtured and studied for re-establishing. A semi-parasitic wildflower called Yellow Rattle is being sown in Kingston's meadows and in nationally acclaimed meadow-gardens to weaken these thug grasses. Seed of this has been obtained for sowing after this year's autumn cut.

To be able to call the north churchyard a 'Conservation Area', we need those missing species back. This folder describes recent, unsuccessful efforts to bring one back. It ends with "10 hopes for 2017" suggesting ways forward.

Chris Beales, September 2016



Our Lawns are invaluable, providing access, open vistas, meditative calm that contrasts with the busy-ness of the surrounding hedges, the trees, the world and life itself.

Often the lawns are full of wildflowers. Within the soil at St John's there must be a thousand years of wildflower seeds. We hope to enable the ancient wildflower meadow under our feet to bloom more fully, more sustainably.

Before May in 2016, lawns to the south, east and west of the church were all lovingly close-cut four or more times; as were the lawns alongside the extension patio and all the paths in the north churchyard.

Several types of **Snowdrop** show themselves in clumps in the lawn south of the church, clumps that are alongside graves and in the hedge-bottom. If you can strim round them without difficulty here, snowdrops are sustainable.

Only one **Elm Tree** survives in the south churchyard.
It grows through an exquisitely engraved tomb - from underneath.

English elms grow easily from root-suckers but not from seed.
So this tree is probably genetically identical to many other elms -
part of a single tree, alive in fragments all over Europe for millennia;
alive beneath this tomb for 200 years at very least,
outlasting generations of human beings.

Of the long deep story of every plant, of each living creature,
held in existence before us, all we see is a snapshot.

And for a short while, as stewards of this churchyard, we long to
conserve their wonder, their meaning, their identity, their future,
side by side with reverence for the living company of saints.



'Sign-hill' (Mael-dune) suggests a sign you could see from a very long way - a pre-Christian shrine, a way marker, finally, perhaps a cross. Would a landmark of that size have disappeared if made of stone?

The trunk of this great Mael sign might have been a huge elm. Anglo Saxons used elm wood. After 1000 years of weather, elm would have vanished. Elms that lined Royal Avenue within living memory have gone. What dominates the hedgerow immediately across the road from Church Path, however - and Royal Avenue beyond - is still a forest of elm saplings.



Growing out of a grave opposite the west door in February 2005, the leaves of a wild orchid were found. Buds came up but were cut with the lawn. The next year, protected with mesh, our first **Bee-Orchid** flowers opened.

In 2013, eight more appeared. In 2021 there could be 72. A small cluster, protected together, could be sustainable.



This flower is **Lady's Smock**. It is the epitome of ancient, grazed water meadow. It is indigenous to the churchyard. It probably existed here for centuries before the Saxon church. It is part of our heritage in Old Malden.

These flowers were photographed in May 2016, scattered all over the lawn beside the restaurant a few doors along Church Road from St John's.



These dark leaves like watercress are Lady's Smock, growing in our churchyard grass. They are a sign of water beneath our lawns in a dozen places - a sign of **the springs** that still flow under the north-east corner of the church.

The springs may have been treated as holy in pre-Christian times. When Christians were first baptised here, and when a church was dedicated here to St John the Baptist, this spring water gained other meanings. These leaves and flowers tell us what Malden was like when the very first Christians came here.



Again this year, every bud of Lady's Smock that rose from those dark leaves in our lawns was levelled.

To prepare lawn for the barbecue, these final ones by this gravestone were removed.

Nowhere to protect them had been found, no place to celebrate them.



Out of a thousand square metres in the north churchyard, ten had already been set aside as **'CONSERVATION SPACE'**.

Unexpectedly on April 30th 2016 for the first time this Lady's Smock flowered there.

For its wonder, its beauty and the story it tells, it was protected.



A Survey* recorded 75 species of wild plant in our north churchyard.

It suggested that “to record changes in number and distribution”, we should “monitor” Meadowsweet, Meadow Vetchling and Ox-eye Daisy. This has been done from 2006-2016 and is recorded here

MONITORING

MEADOWSWEET

Four square metres of this have been successfully conserved in a dip in the north churchyard, where the spring water may have flowed before it was diverted into the main drain.

Meadowsweet was flowering both sides of the path after the rainy start of 2016.

Its flowers are a pollen and nectar source for many insects, its leaves, a favourite food-plant of this

Emperor

Moth



In 2006 a female Emperor Moth, disoriented by light from the new bollard near the extension gate, laid these eggs on the stone gate post - 30 metres away from its intended Meadowsweet.

Her full-grown caterpillars, reared in captivity, were released on their food-plants in the un-lit Six-acre Meadow.

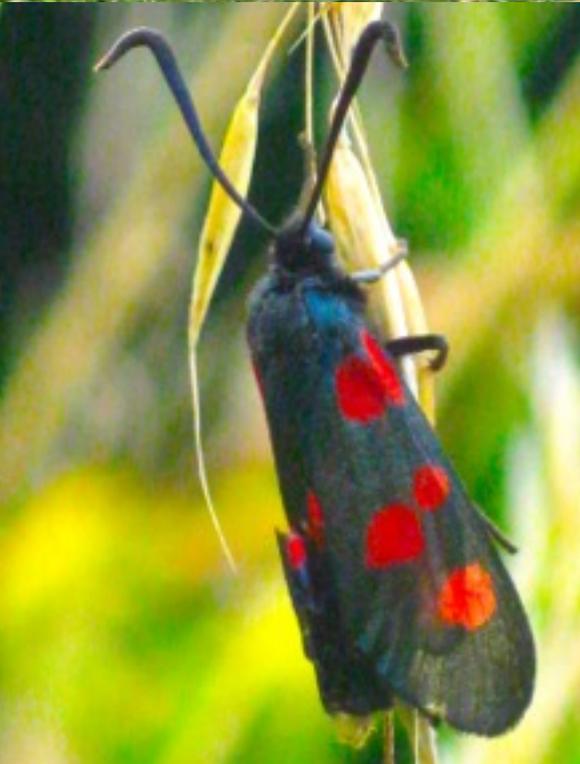


Should Churches be buying outdoor lamps with light frequencies less harmful to night-flying creatures?

* This Survey by the London Ecology Unit in 2003 followed their 1992 publication “Nature Conservation in Kingston on Thames”



MONITORING
MEADOW VETCHLING



This has thrived, all over the surveyed area, clambering over the tall grasses, stealing the light from other plants. In many places it is winning the battle, but in others the dense mat of grass has already won, blocking the light of the sun, cutting off its food supply and its fuel.

It is one of the food-plants of our two species of day-flying Burnet Moths.

This moth is probably a **Narrow-Bordered Five-spot Burnet**.



Meadow Vetchling needs tall grass to climb. This may be best achieved on graves maintained as an island site surrounded by path, conserving valuable grave-edge sites to make rich habitats for shorter plants.



No trace was found of this purple **Tufted Vetch** until 2014, although it was recorded in one quadrat sampled in the 2003 Survey. Possibly its pods didn't ripen and burst till after they had been carted with cut grass to the Great Heap.

Tufted Vetch seeds sown on a different site might have thrived. **Graves each provide a unique eco-system.** Like raised and sunken beds planted by gardeners. These suit different plant communities.

Probably why **Common Vetch** (below) thrives in the churchyard is that its black pods explode before being cut and removed.



Compared with cut flowers that quickly die, thriving wild flower communities conserved among graves could be a beautiful way to honour the living memory of saints we love and others - forgotten.





What else is special about our ten square metres of **Conservation Space**?

When **Common Blue** butterflies first re-appeared in the churchyard in 2014, it was in this space they chose to sun themselves, to roost at night and to lay their eggs.

It was on this **Bird's-foot Trefoil** conserved very successfully here till 2016, they chose to feed several generations of caterpillars.



A trefoil leaf with a butterfly egg attached. - This green trinity is hosting another new universe.

Bird's-foot seed pods show how for millennia the Sower catapulted the seeds.





Insects choose the **Conservation Space** because its temperature is a few degrees higher than most of the churchyard. - It is less shaded by surrounding trees. Under short grass the earth bakes and holds its heat. Warmth is all-important for cold-blooded butterflies.

Butterflies and Moths are a visible, well-documented **litmus test of bio-diversity**. A wide range of these flying miracles indicates a flourishing, rich eco-system. The early stages of many of these Blues, for example, are also intimately linked with the life of ants and with ants' nests.

No Common Blue has appeared by September 2016 from our colony. Is this climate change, is it insecticides, is it this year's heavy rain, or was it the date the Trefoil was cut - perhaps with caterpillars still on it?



2016 started wet and cold. No Blues had been seen in the Conservation Space at all. On June 7th this severely battle-scarred, iridescent green member of the Blue family arrived. - She unhesitatingly located the same conservation hot-spot.

She's a Green Hairstreak, the last visitor you expect in Worcester Park. In ten years, their numbers have declined 34%, nationally.

She fluttered from one leaf to another, testing each for nutritional value, checking temperature. You could tell she was choosing the best place to start a family.

She then very graciously posed to be **recorded, laying an egg** between the youngest Bird's-foot Trefoil leaves.

Her egg contains all the digital information of her flight controls; how and where to grow wings; how to make a thousand scales on each wing, each scale engraved with a measured lattice of squares, spaced to reflect iridescent green light. On the Blues, particular lattice patterns create iridescent blue. Other lattices colour the copper, purple and metallic butterflies. How can we let the earth lose such treasure; leave generations unaware it exists?





The underside pattern of these **Brown Argus** butterflies shows they also are cousins to the Blues.

These two tiny, aggressive creatures patrolled the Conservation Space for a fortnight in June 2015. They basked in prominent places on favourite grass stems. They launched themselves at every flying object that passed. Marks on the wings of the male, on the right, probably show that a bird snapped its beak at him - and he got away.



This *Geranium sanguineum*, is conserved on two graves in the churchyard. Wild geraniums like Dove's-foot Cranesbill usually chosen as food-plant by Arguses have largely been choked out by strong grasses. So this Geranium, popular in rock gardens - named '**Bloody Cranesbill**' for its crimson petals and blood-red leaves on dry soil - may be their only alternative.





This **Small Copper** butterfly is on the **Ragwort** flowers again. As a caterpillar he probably started on red **Dock leaves** (left) or on Sorrel near to the Conservation Space. His bar-code of freckles gives him away. Iridescent orange Coppers are another branch of that Blue fraternity.

Ragwort is our most conscientiously conserved nectar source in the churchyard. Large doses of Ragwort in hay are said to be toxic to livestock. But the charity, Plantlife, reports it is home and a food-source for 107 sorts of insect.

Maybe if clumps of Ragwort grew with Docks, Vetches could climb both . . .



This immaculate **Painted Lady** jetted into our churchyard hotspot on June 4th 2014, not interested at all in our **Spear Thistles** splendidly conserved for years here for her spiny web-spinning caterpillars to enjoy.

Her priorities were a drink - and a husband.

Just migrated in from North Africa with the rest of her set? Or is she so immaculate that such a cross-continental marathon is out of the question?

Is she the signal that global warming now allows her sort to survive a winter in Surrey?



That same July, this damaged, veteran **Marbled White** butterfly tottered into the Conservation Space for respite care and warm shelter. These refined members of the Brown family rarely travel far from chalkland. This one dropped in for a rest, a short sip and a warm-up. Not a long-stay guest. Typical male then?

Or did our grass taste and smell so unpleasantly of clay rather than chalk, that she knows the diet won't suit her offspring?

Behind her gentle eye, is there a soul, or a vast, inherited, digital memory? or both?



Lady's Bedstraw is conserved round two particular graves near the recent extension. It often indicates chalk in the soil. Was lime perhaps left there after work on the Victorian extension?

A raft of distinctive species is found on chalk. So, for years, a hopeful eye was kept on the Bedstraw. In May 2015, a Hawkmoth appeared, hovering at dusk, taking scented nectar from the yellow flowers - another migrant from the south.

She must have laid at least one egg, because in June this **Humming-bird Hawkmoth caterpillar** was found devouring Bedstraw. It was saved from the mower - in captivity.



When the caterpillar shed its last skin, the **chrysalis** of our Hawkmoth, was surprisingly streamlined and transparent.

In a week or two, it was ready to hatch.

Dark wings could be seen through its wing-cases.



In recovery mode, an hour after birth and before being released over the bedstraw, the moth was very still. Pictures were possible.

Day-flying Hawkmoths usually flash by too fast for an amateur's camera.

They hover for seconds in front of one flower, then dodge to another.



In its time-capsule, that tubular green munching machine had also developed a long black tongue visible between its wings. With that it probes into flowers, taking nectar from each, fast as a finger plucking guitar strings.

A few hours after 'birth', that drab moth can navigate at 60mph. It can do aerobatics to get nectar, it hovers, flies sideways, even reverses.

Thankyou Wikipedia (AS) for the action photo below.



Was all this a built-in capability within Creation - in the Big Bang - from the Beginning, with the earth, the clouds and the beauty of the sunset?



False Oat Grass - its long wiry stems sowing wild oats over another 3 metre diameter circle every year.



Cock's Foot grass points fat-bunches of flowers in all directions - where the wind will blow its seeds.

Our churchyard is a

UNIQUE HABITAT.

As stewards of it, conserving our wildflower meadow is our heritage and our calling. It is seen by everyone who passes. Its beauty and the abundance of the life it contains could inspire them and generations of visitors, expressing the glory of its Creator.

Sadly, it is primarily these **STRONG GRASSES**, that we now conserve, 1000 square metres of them. Grasses are driving out other wildflowers and the creatures that feed on them.



Lime-green Wood Brome chokes forest vegetation so totally, Oregon State now exterminates it.



Cream flowered Yorkshire Fog totally suffocates with a velvet-soft blanket of silver-green thatch.



This forest of tall **False Oat Grass** and **Yorkshire Fog** in the north churchyard is seriously destructive. These handsome thugs are pushing out other plant species progressively.

A 98% proportion of strong grasses in this photo is the exact opposite of bio-diversity and good conservation. Any well-balanced meadow has many nectar-bearing flowers and many types of grass.

Since 2006, at least three of the less aggressive species of grass, Sweet Vernal Grass, Crested Dog's Tail and Timothy Grass can no longer be found.

False Oat Grass + Yorkshire Fog grass 98% - all other plants 2%. Biodiversity reduced every year.

MONITORING
OX-EYE DAISIES

pointed to the
same problem



Only this **one Ox-eye Daisy** was left in the north churchyard to photograph in June 2016.

Those sown in the Conservation Space to re-introduce the daisies were cut - when the paths were cut - three times before May 17th.

Some growing in the longer grass were smothered by the dense blanket of wet thatch after the prolonged spring rain.

This surviving Daisy provided a drink for a day-flying **Burnet Companion Moth**.

Before the 2006 Report,
Ox-eye Daisies had been the
crown of our wildflower meadow.
Soon after, in the north churchyard,
they had become **extinct.**

Asked whether
these had been wiped out
by our choice of cutting regime,
**Kingston Council's Manager of
Green Spaces, Carbon Reduction
and Sustainability,
Marie-Claire Edwards,**
emailed as follows:-

*'Shame about the ox-eyes.
Not only are they so beneficial
for pollinating insects particularly
bees, butterflies and hoverflies
but are also very attractive from early
to late summer. You are correct
in your assumption that the
**one cut would have been
very detrimental to the daisy**
as it cannot compete
with grasses.'*



Trying to re-introduce Ox-eye Daisies in 2014, one was planted in the Conservation Space.
In 2015, the 30 flowers in this photo had been produced by the seeds from the first one.



For decades
Ox-eye Daisies have
welcomed church visitors with
this display **at the west door.**

This beautiful example of
sustainable conservation,
needs to be matched in our
Conservation Space.

The London Ecology unit
'warmly endorsed' what St John's
was 'already doing' in 2003.
It is time to **rediscover what
was being done so very
successfully** then, and
enable Ox-eyes to flower,
as they used to, in the
north churchyard.

When the Ox-eyes recover,
many other wildflowers
should re-appear too.

Wild Ox-eye Daisies conserved in a patch of lawn near the west door - 12 June 2014.

Those same
Ox-eye Daisies by
the west door were
photographed in bud
on 29th April 2014,
They were already 10cm high.
They could probably have been cut,
without destroying many
buds, about a month earlier.
So to follow the advice
from Kingston for the
Conservation Areas:-

an extra cut-and-clear
is proposed before March 31st
(before Ox-eye buds appear):

also, the wildflower meadow should
not be cut again until the August cut
(after seeds have been dispersed).

In most years, 31st March
is before Good Friday. The whole
church is being made **ready for Easter**.
Clearing the churchyard for new life
could be a parable for what the
whole church is preparing
to share at Easter.





2017

OUR TEN HOPES for conservation

- ✓ Two cuts in the north churchyard the first before March 31st
- ✓ 30 Ox-eye flowers again, in both the Conservation Space and in the north churchyard
- ✓ 10 Lady's Smocks flowering in the Conservation Space
- ✓ All 9 Orchids flowering and dispersing their ripe seeds
- ✓ All lost grass species refound, their seed resown for survival
- ✓ Tufted vetch seeds planted in extra sites, among tall plants
- ✓ Common Blue butterflies back breeding on Bird's Foot Trefoil
- ✓ Green Hairstreak, Small Copper and Brown Argus breeding here
- ✓ nectar-bearing flower species in every square metre
- ✓ Begin trials with Yellow Rattle to weaken the stronger grasses



