7. The Lichens of Simpson's Fromus Valley Reserve, Kelsale, Suffolk.
(Suffolk Flora Preservation Trust).

C. J. B. Hitch

Dates:
23 . 3 . 2014
7 . 6 . 2014
11 . 3 . 2015

Grid Reference: GR 62(TM)/38-66-.

The reserve was visited on three dates. On the first day the site was walked with Julia Mclean, the publicity officer, , to get an idea of the lie of the land and a preliminary idea of the lichen flora present.

Subsequently recording took place and a path was followed which took an M-shaped pattern, starting in the top left hand corner, getting to the entrance by lunch then working round the trees in that vicinity, before setting off for the right hand corner at the top and coming down the right hand edge.

The site is approximately 28 acres of pasture, divided into fields, which are bounded by hedges, with mature trees scattered along their length and initially two days were taken for recording purposes.

At the top of the reserve is some light woodland, bordering the River Fromus, which starts there and which has cut deeply into the soil, forming a small steep sided valley beneath the trees. Relict earthworks in the vicinity form an embankment, running at right angles to the river, which when they were dug, restrained a mere in the water meadow and borne beyond.

Apart from these habitats, there are some small amounts of worked wood in various states of decay and very occasionally, bits of stonework, either as concrete lumps, helping to stabilise the soil in a hedgerow gap, but also a few ancient concrete gateposts. There is shingle on the bed of the river in the valley and a small raised beach where the river wends it way near the reserve entrance, but at neither place were any lichens seen, due to the instability of the sites and the muddiness of the water when the river is in spate.

Most of these substrates can support different lichens and most of the species have been recorded in the field. A few scrapes were collected where it was felt that the author was not entirely sure of their determination.
It was ultimately decided that a third visit would be beneficial and took place in due course, see heading. This third visit involved walking to the earthworks south of the borne and surveying the massive branch fallen from the ash (Fraxinus excelsior) on the south side, to confirm what it was and make a small collection to get it identified.

At the same time the base of the ash on the north side was looked at and another important species was discovered there. An overall list of the species recorded are shown in Table 1.

Table 1. The lichens recorded on three visits to the site.

This list is the overall number of taxa seen, with substrate/s.

Amandinea punctata	ash, lignum
Arthonia radiata	ash twigs
Bacidia delicata	field maple in wood
Caloplaca austrocitrina	concrete post
Caloplaca citrina agg	concrete post
Caloplaca cerinella	fallen ash branch
Caloplaca limonia	concrete post
Caloplaca obscurella	field maple by pond
Caloplaca phlogina	field maple
Caloplaca ruderum	concrete post
Candelariella aurella	concrete lump half buried
Candelariella reflexa	fallen ash, hawthorn
Cliostomum griffithii	oak bole, field maple
Diploicia canescens	ash bole, field maple
Flavoparmelia caperata	fallen ash
Flavoparmelia soredians	pile of logs
Haematomma ochroleucum var. *porphyrium*	hawthorn twig, oak, ash, field maple
Halecania viridescens	ash twig

Hypotrachyna afrorevoluta	oak branch, fallen ash
Hyperphyscia adglutinata	sunny base of massive ash
Lecania cyrtella	field maple, ??? concrete,
Lecanora albescens	concrete lump half buried, post
Lecanora barkmaniana	multi branched fallen limb of ash
Lecanora campestris	concrete post
Lecanora carpinea	ash twig
Lecanora chlarotera	ash branch
Lecanora confusa	oak
Lecanora dispersa	concrete lump half buried
Lecanora expallens	oak, ash, concrete post, lignum, field maple
Lecanora hagenii	fallen ash, treated lignum
Lecanora ??? horiza	concrete post
Lecanora cf *hypoptella*	treated lignum
Lecanora persimilis	fallen ash
Lecanora symmicta	hawthorn
Lecidella elaeochroma	ash branch
Lecidella stigmatea	concrete lump half buried
Lepraria incana	shady hawthorn
Lepraria lobificans	base of hawthorn, dog rose - shady
Melanelixia subaurifera	ash bole, oak. lignum
Opegrapha niveoatra	dog rose - shady
Opegrapha vermicellifera	underhung base of ash
Parmelia sulcata	dead oak branch, fallen ash
Parmotrema perlata	hawthorn scrub
Phaeophyscia orbicularis	lignum, field maple, concrete
Phlyctis argena	ash, oak base

Physcia adscendens	lignum, ash, field maple, oak twigs, concrete
Physcia tenella	lignum, ash, field maple, oak twigs concrete
Physconia grisea	fallen ash branch, field maple
Placynthiella dasaea	lignum
Placynthiella icmalea	lignum
Porina byssophila	field maple, ash
Psammina stipitata ##	algae on dog rose - shady
Punctelia jeckeri	field maple north side of earthworks
Punctelia subrudecta	lignum, fallen branch of ash
Pyrrhospora quernea	lignum
Ramalina farinacea	ash bole
Ramalina fastigiata	fallen branch of ash
Schismatomma chlorococcum	ash branch, fallen oak branch
Schismatomma decolorans	oak, field maple
Taeniolella phaeophysciae #	fallen ash branch on *Phaeophyscia. orbicularis*
Verrucaria dolosa	concrete lump half buried
cf *Xanthoria aureola* (*X. ectanoides*)	field maple
Xanthoria candelaria	lignum, minute on fallen ash
Xanthoria parietina	lignum, ash, field maple
Xanthoria polycarpa	lignum of gate
Xanthoria ucranica	lignum of gate, ash
Xanthoriicola physciae #	ash branch on *Xanthoria parietina*

Table 2 The lichens, lichenicolous fungi and fungi at the recerve, in much more detail.

First visit (23/3/2014), with Grid References. Notebooks Q1/126, Red 25/94. The codes, eg Y191, refer to my herbarium data.

62(TM)38378.66530
Lignum of 5-barred gate
Lecanora expallens, Melanelixia subaurifera, Punctelia subrudecta. Xanthoria parietina, Xanthoria polycarpa, Physcia tenella, Amandinea punctata, Pyrrhospora quernea, Physcia adscendens, Phaeophyscia orbicularis, Xanthoria candelaria, Placynthiella icmalea.

Concrete gatepost
Lecanora campestris

Ash branches in borne woodland
Xanthoria parietina, Physcia tenella, Physcia adscendens, Lecanora chlorotera, Lecidella elaeochroma, Artonia radiata, Amandinea punctata, Lecanora carpinea, Xanthoria parietina with *Xanthoriicola physciae #*

Oak in borne woodland
Haematomma ochroleucum var porphyrium

Dead wood attached to above tree
Parmelia sulcata, Melanelixia subaurifera

Hawthorn in borne woodland
Lecanora symmicta

62(TM)37939.66835
Oak in woodland
Lecanora confusa

Ash in woodland
Phlyctis argena

Base of hawthorn in woodland
Lepraria lobificans

Mossy ash bole in woodland
Haematomma ochroleucum var. porphyrium

Big oak in woodland
Schismatomma decolorans

Field maple in woodland
Schismatomma decolorans, Y10 Bacidia delicata

Field maple in woodland
A sheet of Haematomma ochroleucum var porphyrium, Cliostomum griffithii, Phaeophyscia orbicularis

Field Maple in woodland
Y4 *Lecania cyrtella*

62(TM)37932.66793

Fallen branches of ash by free standing tree
Phaeophyscia orbicularis, Y199/A *Phaeophyscia orbicularis* with *Taeniolella phaeophysciae* #, *Physconia grisea*, Y199/B *Caloplaca cerinella*

South side of bole
I thallus of *Ramalina farinacea*

62(TM)/37992.66761
Many branches of fallen ash limb
Punctelia subrudecta, Xanthoria parietina, Physcia tenella, Physcia adscendens, Flavoparmelia caperata, Y1931 *Lecanora barkmaniana,* Y196 *Hypotrachyna afrorevoluta, Candelariella reflexa*

62(TM)/38061.66708
Vast ash in hedge
Tree white with *Phlyctis argena*

62(TM)/38211.66632
Hawthorn scrub straddling stream
Parmotrema perlata, an abundance of *Xanthorion* elements on elders and dog rose by car park , bottom of the reserve with Y192 *Lecania cyrtella*

North corner of the pond on base of field maple bole on north side
Dipolicia canescens, Caloplaca obscurella, Hyperophyscia adglutinata, Xanthoria parietina, Physcia tenella, Physcia adscendens, Lecanora expallens

62(TM)38193.66659
Walking back up the reserve to a hedge with a gap in it at the left hand side, joining with the hawthorn scrub straddling the stream. Cane of dog rose in deep shade Y7/A *Opegrapha niveoatra* and *Lepraria lobificans*, Y7/B on algal crust *Psammina stipitata* ##

West-facing field Maple at right hand edge of gap
Xanthoria cf *ectanoides*

Conctrete lumps buried in clay in gap to fill in pot-holes
Y5 *Verrucaria dolosa,* saxicolous ??*Lecania cyrtella*, *Lecidella stigmatea, Lecanora dispersa, Candelariella aurella, Caloplaca citrina* agg. *Lecanora albescens*

Fallen ash right hand side of fields in hedge after concrete lumps
Lecanora hagenii, Lecanora persimilis

62(TM)38140.66754
Lignum of wooden fence with Xanthorion elements
Y9/A *Lecanora hypoptella* group Y9/B L*ecanora hagenii*

Close by on branches of field maple, grey with *Parmelia sulcata*
Y191 *Xanthoria candelaria* (thalli very small)

More or less the same field on the left hand side, oak boles and branches

Boles - *Lecanora expallens, Cliostomum griffithii* and - branches, *Physcia tenella , Physcia adcsendens, Phaeophyscia orbicularis*

Oak near wood pile and tree fallen over stream
Schismatomma decolorans

RHS of field, a massive oak
Schismatomma decolorans, Cliostomum griffithii, Lecanora expallens, at base *Phlyctis argena*

62(TM) 3802666863
Concrete post by white lichenised tree near to the wood and borne
Y195 *Caloplaca austrocitrina, Phaeophyscia orbicularis, Caloplaca ruderum,* Y197 *Lecanora albescens*

Ash, white lichenised bole with lichens
Phlyctis argena, a few *Ramalina farinacea* on south side of bole, many more on the north side

Crataegus
Candelariella reflexa

A big field maple on south bank of earthworks
Caloplaca phlogina

Cut wood of woodpile
Flavoparmelia soredians

A massive fallen mossy oak bole
Should have carried *Cladonia* thalli, but did not have any present

A sloping field maple in the area of the fallen mossy oak Y1/A *Anisomeridium biforme*, Y1/B *Schismatomma decolorans, Cliostomum griffithii, Lecanora expallens*, Y1/C *Porina byssophila*, Y1/D *Caloplaca obscurella*

Second visit 7.6.2014. Notebooks Q1/161 R25/105. Are the same locations.

A large ash bole beyond the cowbyre with a white streak of lichen thalli down the bole
S5 *Phlyctis argena*, see entry 18 on previous visit and on the butress roots a lot of *Phaeophyscia orbicularis*

An ash opposite the fallen branches of tree
A large streak 6 ft long and 9 inches wide in the centre, *Schismatomma decolorans* and twig, S15 *Halecania viridescens*

On tree next to it
Diploicia canescens with S2 *Schismatomma chlorococcum*

A dead branch of Crataegus near to the old gate
Physcia tenella, Xanthoria candelaria, Xanthoria ucranica and on lignum of the gate S20 *Placynthiella dasaea*

Going into the field with the spring line in it, a dead branch of large oak in south west corner
Punctelia jeckeri, Hypotrachyna afrorevoluta and *Punctelia subrudecta* three large thalli next to each other in a row on the branch.
In the vicinity of the earthworks the concrete post supported what looked like *Lecanora horiza*, but could just be *L. campestris* on south and east vertical sides, the thalli varying in size from 4" down to 1" in diameter. Also present *Caloplaca limonia, Lecanora expallens, Lecanora campestris* and *Lecanora albescens*

A large field maple on the bank of the earthworks
Physconia grisea and more *Hypotrachyna afrorevoluta*

Going northeast along the southbank of the earthworks, came across a massive fallen branch of ash
Xanthoria parietina, Xanthoria ucranica, Xanthoria polycarpa, Parmelia sulcata, Punctelia subrudecta, Ramalina fastigiata, Physcia tenella, Physcia adscendens, Melanelixia subaurifera, Lecanora carpinea with swollen centres of the fruits, *Ramalina farinacea* and S4 *Lecanora compallens*

A massive oak branch fallen
S9 *Scoliciosporum* chlorococcum

Note - seen earlier, *Haematomma ochroleucum* var. *porphyrium* on Crataegus twig.

A massive ash
The bark white with *Dipoicia canescens* and a tiny thallus of *Hyperphyscia adglutinata*

A field maple on southwest side of bole
At base S13 *Opegrapha vermicellifera* and S10 *Schismatomma decolorans*

On south-facing fallen branch of big ash on south side of the embankment and concrete
Abundant *Hyperphyscia adglutinata,* S11 *Lecanora compallens,* S16 *Lecanora campestris* (concrete), (S) *Physcia tenella , Physcia adscendens* and *Xanthoria candelaria*

Third visit 11/3/2015. Notebooks Q1/220 R25/127. These record are the result of further follow up work.

To visit the top corner of the reserve at the base of the south-facing embankment of the earthworks

To refind the fallen ash branch and try and refind the site of S11 from the last visit.
It was very obvious with at least 100 thalli with yelllow soralia and soredia, but corticate at the edges. The bark is still intact, but is coming away from the wood inside. R17 *Lecanora compallens* was collected.

On the north side of the standing bole, nearly at the top of the earthworks
A large patch of *Porina byssophiila* (R9) was collected, growing with *Lecanora expallens, Diploicia canescens, Hyperphyscia adglutinata* and *Schismatomma decolorans* on the east side of the bole.

North of the bank and north-facing on hawthorn
Lepraria incana

On field maple, on the far north side of the earthworks
Punctelia jeckeri, Punctelia subrudacta, Parmelia sulcata and *Physconia grisea*

Tables 1 and 2 show that there are about 59 lichens (the number varying, due to the fact that the position of some of them is not clear at the moment), at the Fromus Valley Reserve, together with 2 lichenicolous fungi with 1 # and 1 pure fungus with ##, which lichenologists also record. The two tables being different in detail.

The pure fungus in the past was thought to be lichens, since it was seen that the algae and fungus appeared to be growing closely together, but it is now known that the fungal part grows within the wood of the tree, whereas the algal cells are only on the outside.

Unlike lichens, where there is a symbiotc association between the alga and the fungus, with lichenicolous fungi there is no such association, they live on or in the tissues of the lichens, but don't gain any nourishment etc from them. They may be completely harmless without affecting the lichens at all, or they can be quite delerterious, affecting them considerably, or eventually killing them off completely. At the Fromus reserve, the *Taeniolella phaeophysciae* is the first type , whereas the *Xanthoriicola physciae* is the second type.

Lichens, being incredibly slow growing, about 0.1 - 0.5 mm per annum radially, they only require a minimal amount of nutrition, otherwise the symbiosis breaks down and atmospheric pollution continues to be a problem one way or another.

Acid rain and nitrogenous substances are the two constituents which affect them. Acid rain, weak sulphuric acid produced by the amalgamation of rain water and sulphur dioxode in the air, is a bleaching agent and when it is absorbed by the lichens, as there is no external "skin" to protect their sponge like structure, the chlorophyll of the algal cells is destroyed , so the symbiosis breaks down.

Nowadays acid rain is less of a problem than it used to be, as the burning of fossil fuels is less, with sulphur dioxide output lower and that is a blessing. However, the output of nitrogen has taken over as the killer. Elemental nitrogen isn't the trouble. It is the emission of nitrogen oxides which do the damage, coming from car exhausts using petrol and worse still from diesel. Also from excreta from farm animals and the fertilising of arable farm land. Much of the nitrogen oxides produced by cars is converted into ammonium ions by the use of catalytic converters, so the sponge-like lichens taking up these ions and are again killed.

There are some lichens , that are referred to as *Xanthorion* elements , yellow *Xanthoria* species and grey *Physcia* species, which positively thrive on increased nitrogen, needing more for healthy growth. They do not grow any bigger, just much more prolifically and both genera are very common on the reserve - see in Table 1 with the number of substrates where they were recorded. It is thought that not so much the result of cars, though with the A12 close by, there would be considerable drift, but more from the arable land surrounding the reserve.

There is help however, which comes in the form of wind breaks, i.e. hedgerows and trees. This barrier will produce what is called a polluton shadow, which when the wind hits the barrier it is deflected upwards and over the site,so leaving the air at ground level relatively free of the pollutents. To some extent at the reserve, this is the case, though it was depressing to see that on the northeast boundary, the hedges had been drastically thinned and it can only be hoped that they will thicken up again.

In spite of all this, there is a good deal of interest at the site, including some really exciting finds. Potentially three species are new to the county. *Halecania viridescens*, *Lecanora barkmaniana*, and *Lecanora* cf *hypoptella*. The first two are confirmed and the third is close to the name given, but there are some anomalies and good collections from Scotland slightly vary. This lichen is very rare even there, so until more material is found and a wider spectrum

of measurements etc can be demonstrated, the Fromus collection will have to go on being called *Lecanora* cf *hypoptella.*

Another interesting find was *Lecanora confusa* on oak. Till fairly recently it was restricted to the west of the British Isles, but maybe came to Suffolk on a young sapling apple tree that was planted, which appears to happen with brought in trees and since then it is thought to have spread and is not that uncommon in the county now.

Lecania cyrtella, a very common lichen in Suffolk, was also recorded and is usually found on dead bark or lignum of elders and on the Reserve was seen on elders near the pond at the entrance, but also on field maple in the borne woodland. Being normally corticolous, it was strange to record it off the concrete lumps in the hedge gap, though there are many lichens that are not restricted to one type of substrate. Unfortunately with the dredging of the River Fromus towards the top end of the reserve, all of the hedge and the concrete lumps, buried in the ground having got further buried with the dredging waste, the lichens are gone at that point, so it is very fortunate that some of the material has been collected to confirm this now historical record.

There are two othe records worth a mention. On the south-facing side of a field maple at the right hand side of the gap and concrete lumps now gone, what appeared to be corticolous thalli of *Xanthoria aureola* - ex *X. ectanoides*, where it is normally saxicolous. It looked to be correct, though some lichenologists do not accept it and think that it is just a growth form of *X parietina* on coastal rocks. However, collections brought inland and grown for several years, maintain their unique morphology which suggest that it is a good species.

Finally a note about *Porina byssophila,* which with chemical analysis has proved to be correct and accepted and recently has occasionally turned up in Suffolk. So it was very nice to be able to record it on field maple and the bole of the massive ash on the south side of the earth embankment.

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February 4th 2018