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Changes in the lichens of Chippenham Fen, 1975 – 2010

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A detailed survey of the lichens of Chippenham Fen was undertaken in 1975 (Laundon, 1977). This site was revisited by members of the Cambridge Lichen Group in 2009 and 2010. Annotated species lists are presented, separated in time by approximately 35 years. The differences between the two lists are considerable and are broadly similar to those observed over a similar time span at Wicken Fen (Powell, 2010).

The recent survey was designed to be broadly comparable to that conducted in 1975. In both cases Underdown Plantation was omitted. The earlier survey was carried out on 24 February, 25 March and 29 October 1975; the Fen was revisited on 18 April and 22 November 2009 and on 20 March 2010.

Extracts from Laundon's 1977 paper are quoted in italics and some of these are discussed in the light of subsequent information. In these extracts the only changes made to the original text are to update nomenclature to keep lichen species names consistent throughout this paper.

The four remaining areas of extensive semi-natural vegetation in the Fens, namely Chippenham, Holme, Wicken and Wood Walton Fens, are all examples of recent secondary woodland (i.e. woodland which has developed on land cleared of original forest) remote from areas of primary woodland. Thus the lichen flora of these fen woods is of interest because it is not derived from a relict flora as in many woodlands elsewhere in Britain, but comes largely from propagules brought in from outside. Thus the species that colonise the fen woodlands are lichens which are viable and mobile at the present time or at least in the recent past.

Laundon cites several sources which suggest that the Cambridgeshire fenland had been without woodland since at least the twelfth century. Mature willow trees along the banks of rivers and ditches would have provided the chief habitat in the fens for corticolous lichens during medieval and later times. In Chippenham parish the clearance of woodland had been completed by the middle of the twelfth century and from then onwards throughout medieval times the parish consisted entirely of open-fields except for the village itself, the fen in the north-west corner, and the heath on the chalk in the extreme south.

It was in 1796 that John Tharp made preparations to drain, enclose and plant the fen; before this time it was described as "being all inundated the greater part of the year" (Spufford, 1965). Apparently almost two million trees had been planted before 1810, chiefly in two main plantations: Forty Acre Wood and Jerusalem Wood (Kassas, 1951), both of which still exist today. Forty Acre Wood "was a young plantation of conifers in 1800" but a "coniferous wood was never established" because "deciduous trees came in as soon as the land was made ready for plantation." (Kassas, 1952) It is clear that there was no woodland on the fen before Tharp's plantations. A map of the parish, dated 1712, called "A survey of the Mannor... of Chippenham... by Heber Lands" (Cambridge Record Office R 58-16-1) shows individual trees. "Chippenham Fen, including what is now Forty Acre Wood, is shown as treeless except for a few groups of trees in the extreme east corner of the site of the wood. To the south is "The Marsh", also treeless, part of which is now occupied by the largest of the

Jerusalem Plantations” (Rackham, in litt.). The woodland at Chippenham Fen therefore dates from c. 1800, and thus most of the epiphytic lichen flora developed on the fen after this date.

Perhaps the most interesting lichens recorded are *Enterographa crassa* and *Graphis elegans*, both growing low down on a few adjacent ash *Fraxinus* trees in the north-west section of Forty Acre Wood, both being quite rare in Eastern England at the present time. *Enterographa crassa* is regarded by Rose in Morris & Perring (1974, p.262) as an “old forest” lichen epiphyte which can be regarded as an indicator species and therefore used in calculating the “Index of Ecological Continuity” of the forest environment. The presence of *Enterographa* in secondary woodland dating from c. 1800 clearly shows that this lichen cannot always be regarded as an “old forest” lichen, and consideration should be given to its removal from Rose’s list of indicator species. The nearest old woodland to the fen is Dalham Lawns 10 km. to the south-east (Rackham, in litt.).

Enterographa crassa can still be considered as one of the more interesting lichens occurring at Chippenham Fen and it appears to have spread and increased in abundance since 1975. It is most abundant where Laundon found it in the north-west section of Forty Acre Wood, where it grows on a range of trees. Scattered individuals are also found in North Jerusalem Wood and South Jerusalem Wood. *Graphis elegans* was not found during the recent surveys but *Graphis scripta* was found to be very locally abundant on *Corylus* in Forty Acre Wood and also present on *Carpinus* in North Jerusalem Wood. Neither species of *Graphis* is common in Cambridgeshire or neighbouring counties so the populations at Chippenham Fen are locally significant.

Since Rose first formulated the use of lichens as indicators of ecological continuity (Rose in Morris & Perring, 1974) the “indices of continuity” have been updated but subsequent field work has largely confirmed the validity of the lichen species that were originally selected as indicators, (Coppins & Coppins, 2002). The Revised Index of Ecological Continuity (RIEC) was published in 1976 and is still used to grade the “ancient woodland” characteristics of deciduous woodlands throughout the whole of Great Britain and Ireland. *Enterographa crassa* is retained in the base list of 30 indicator lichens which appear to be faithful to woods that have retained varying degrees of ecological integrity over time. The only RIEC species that is present at Chippenham Fen is *Enterographa crassa*. The New Index of Ecological Continuity (NIEC) was developed in response to advances in knowledge of the taxonomy, ecology and distribution of epiphytic lichens since the publication of the RIEC. The NIEC is applicable to most of lowland Britain; it is based on a list of 70 species primarily devised towards grading woodlands for their conservation status. The NIEC is not intended to replace the RIEC, but to be used in conjunction with it, as the latter indicates the “ancient woodland” qualities, whilst the former has broader application to assess the overall conservation of a given woodland site. None of the 70 species listed for the NIEC assessment are recorded for Chippenham Fen. The presence of *Enterographa crassa* at Chippenham is still enigmatic. While the presence of one indicator species in isolation is of little significance, the continued inclusion of *Enterographa crassa* in RIEC suggests that it is a lichen of very limited dispersal between sites. Perhaps the “few groups of trees” in the

extreme east corner of the site of Forty Acre Wood that were mapped in 1712 contained some ancient trees that retained some ecological continuity with a time before the fens were cleared of woodland.

Despite the occurrence of Enterographa and Graphis, the lichen flora of Forty Acre Wood is generally rather poor, the boles being dominated by Lecanora conizaeoides, Lepraria incana, or green algae...

A few species of lichen do not follow the pattern of decline with increased sulphur dioxide levels, one is *Lecanora conizaeoides* which has an interesting history which was outlined by Laundon (2003). The earliest British specimen is a collection made by Rev. Bloxam from a fir tree at Twycross in Leicestershire; by c. 1862 it had been recorded from Kent and Cheshire, later spreading rapidly with the rise in background air pollution as the Industrial Revolution gathered pace. In the 1970s this lichen still formed a monotonous cover on tree bark over much of the midland counties of England. The demise of *Lecanora conizaeoides* under the declining sulphur dioxide levels has been spectacular and this lichen was not found during the recent surveys.

Hedera is remarkably abundant in the northern part of Forty Acre Wood, where it smothers the Fraxinus and other trees, and, being evergreen, shades out the lichen flora, as well as directly overrunning epiphytes on the surface of the bark so that they are eliminated by competition from the climbing roots and stems. Kassas (1952) discusses and illustrates the abundance of Hedera in Forty Acre Wood, and Rackham (1975, pp. 50-51) remarks that "ivy is often a precise indicator of secondary parts of woods, even after centuries."

The occurrence in mature woodland of alder Alnus, birch Betula, ash Fraxinus and oak Quercus, etc., forming Forty Acre Wood and the plantation belts of Jerusalem Wood, is one of the two main reasons for the occurrence of a rich corticolous flora at Chippenham Fen in comparison with the three other fenland reserves. At the other reserves the shrub and tree colonisation is comparatively recent, having occurred during the present century, and it therefore follows that the colonisation of corticolous lichens is also more recent and therefore more limited, with an absence of lichens (e.g. Chaenotheca ferruginea) characteristic of old trees. The abundance of Fraxinus at Chippenham Fen, present because of the calcareous nature of the waters that feed it, is particularly advantageous for many lichens. This is because the bark of Fraxinus has a neutral pH (Barkman, 1958, p.108) and is readily colonised by many species in comparison with the acid bark of Alnus, Betula and Quercus which is often poorly colonised in this part of Britain. The richest lichen flora is found on the mature Fraxinus trees bordering the Main Ride (right-of-way) through the centre of the fen.

In addition to the tree species listed by Laundon for the plantations of Chippenham Fen, *Acer pseudoplatanus* and *Carpinus betulus* deserve a mention. The former provides a suitable substrate for *Enterographa crassa*, on the bark of a healthy mature tree in North Jerusalem Wood and an infertile, pycnidiate occurrence on a rotting trunk in Forty Acre Wood. Both *Graphis scripta* and *Schismatomma decolorans* were found on *Carpinus betulus* in North Jerusalem Wood. Mature *Fraxinus* trees bordering the Main Ride still support noticeably rich lichen communities. *Pyrrhospora quernea* is still a feature of these ash

trees, often forming mosaics with *Lecanora expallens*. Another feature of *Fraxinus* trees in the southern part of Chippenham Fen, including beside the Main Ride, is the extensive colonies of *Buellia griseovirens* and *Opegrapha rufescens*, neither of which were recorded by Laundon. On the other hand there appear to be losses from *Fraxinus* trees beside the Main Ride; *Ochrolechia androgyna*, *Parmeliopsis ambigua* and *Trapeliopsis granulosa* were all recorded by Laundon but not re-found. All three of these lichens are typical of rather acidic conditions and the new regime of low atmospheric sulphur dioxide levels and elevated eutrophication by nitrogen compounds may have made bark an unsuitable substrate these days. During tree surgery work on the “oldest tree” in Hayley Wood (a veteran *Quercus*) in 2001 *Parmeliopsis ambigua* was present in some quantity but a revisit in 2009 failed to re-find it (Powell, pers. com.). There are two further species that appear to have declined at Chippenham since the 1970s. *Hypogymnia physodes* is described as frequent by Laundon whereas only a single specimen was found during the recent surveys. At Wicken Fen, *Hypogymnia physodes* was found to be “Frequent. In carr” by Laundon (1973) while by 2008 it was “Rare” and “restricted to corrugated roofing sheets of a school study shelter”, (Powell 2010). In 1975 *Lecanora pulicaris* was reported on *Fraxinus* from several parts of the Fen whereas *Lecanora chlarotera* was not recorded at all. During the recent surveys only a single specimen of *L. pulicaris* was found while *L. chlarotera* was occasional on suitable bark. A similar decline of *L. pulicaris* (a mild acidophyte) and increase of *L. chlarotera* (a nitrophyte) was observed at Wicken Fen over a similar time scale, (Powell 2010). The decline or disappearance of acidophytes at Chippenham is overshadowed by the marked increase in the lichens over the same period of time. The corticolous species recorded in 1975 numbered 34; this had increased to 56 in 2009/10 (a 39% increase). At Wicken Fen, the increase of corticolous lichens between 1972 and 2008 was 33% (31 species and 46 species respectively).

The other reason for the rich corticolous flora is the low level of background air pollution. Comparisons of the lichen flora of the various fenland reserves show that there is a pollution gradient stretching across the southern Fens, with the highest levels in the west and the lowest levels in the east, where the Fens meet East Anglia. This gradient is probably part of the much larger pollution gradient stretching from the highly polluted west Midlands to the much cleaner air of the coastal belt of East Anglia (Hawksworth & Rose, 1970, Fig. 1). The comparatively clean air at Chippenham Fen is particularly indicated by the extensive sheets of Flavoparmelia caperata and Hypotrachyna revoluta, which indicate a lichen flora of zone 7, equivalent to a winter sulphur dioxide level of about 40 μm^3 on the Hawksworth & Rose (1970) scale.

Sulphur dioxide levels in the atmosphere have fallen below the level where they are a limiting factor for lichen growth, but the relatively low historical levels described above may have given Chippenham Fen a “head start” in the re-colonisation of lichens over recent decades.

The nitrophilous communities which occur along the southern edge of the fen form a particularly interesting feature of the lichen flora. Ten nitrophilous species are present, namely *Amandinea punctata*, *Candelariella cf. reflexa*, *Buellia canescens*, *Physcia adscendens*, *P. orbicularis*, *P. tenella*, *Physconia grisea*, *Ramalina farinacea*, *Xanthoria candelaria* and *X. polycarpa*. Of these species, *Buellia canescens* and *Physcia orbicularis* are especially common on the bases of trees on the bank at the western end of South Jerusalem Wood. As all ten lichens are situated at distances of under twelve metres from the edge of the fen, facing and adjacent to ploughed fields, and are absent (with the exception of a single locality for *Candelariella*) from both the interior and, so far as is known, from the edge where it adjoins meadow and rough pasture, it would appear that their presence is due to agricultural dust and fertiliser, wind-blown into the fen from arable soil as a result of farming activities. Green algae and *Lecanora conizaeoides* are both abundant in the same habitats.

The southern edge of South Jerusalem Wood still retains a fairly distinctive lichen community which would, in some respects, have been recognised by Laundon. *Diploicia canescens* is still present on the bases of mature trees and is rare elsewhere on the fen. Most of the other nitrophytes that Laundon lists for the southern edge of South Jerusalem Wood are still to be found there but they are also more common within the interior of the fen than was the case in 1975. Additional nitrophytes have appeared along the margin of South Jerusalem Wood; *Lecania cyrtella* is abundant on *Sambucus* along with more scattered occurrences of *Arthonia radiata* and *Hyperphyscia adglutinata*.

There follows an extract from an informal report of one of the visits by the Cambridge Lichen Group, that of 22nd November 2009:

“A small but enthusiastic group of four met in bright sunshine. The enthusiasm was sustained long after the sun had given way to blustery rain in the early afternoon. The resilience of the group was rewarded towards the end of the day with an abundance of *Enterographa crassa*. A particularly beautiful lichen mosaic was found by Louise near the base of a young sycamore in Forty Acre Wood - a patchwork of *Enterographa* thalli interspersed with the tiny white columnar pycnidia of *Opegrapha vermicellifera*. Lucy produced several twigs that had been blown out of the canopy by recent high winds. These are always worth investigating and one twig yielded abundantly fertile *Scoliciosporum chlorococcum*. This lichen is common but much over-looked; it is often sterile when it is difficult to separate it from algal crusts.”

Chippenham Fen is a noteworthy site for lichens in a regional context even though rare species are absent. The fact that it was thoroughly surveyed and documented in the mid 1970s ensures that it will always be of importance in the story of re-colonisation following the sulphur dioxide pollution of the 19th and 20th centuries. *Enterographa crassa* is of particular interest, occurring here in some quantity within secondary woodland. Lirellate lichens in general are well represented and the extensive colony of *Graphis scripta* in Forty Acre Wood is unusual for the region. Five species of *Opegrapha* appear to have colonised the site since 1975. Chippenham Fen has a few species in unexpected abundance. *Buellia griseovirens* forms extensive patches on mature ash trunks and *Opegrapha rufescens* coats the whole surface of the lower stems of many medium sized ash stems.

List of species recorded by J. R. Laundon in 1975 and by the Cambridge Lichen Group in 2009/10. The 1975 records are as published in Laundon (1977). The nomenclature has been updated and follows *The Lichens of Great Britain and Ireland* (Smith et al. (2009).

Amandinea punctata **1975:** Scarce. Several plants on old *Fraxinus* branch in south-east margin of Forty Acre Wood. Several plants on young *Fraxinus* in margin of High Wood. One plant in rotting *Sambucus* in margin of South Jerusalem Wood. **2009/10:** Occasional.

Anisomeridium polypori **1975:** Not recorded. **2009/10:** Occasional.

Arthonia didyma **1975:** Not recorded. **2009/10:** Rare. Large colonies on a few mature *Corylus* in Forty Acre Wood.

Arthonia radiata **1975:** Not recorded. **2009/10:** Occasional.

Arthonia spadicea **1975:** Not recorded. **2009/10:** Occasional.

Arthopyrenia punctiformis **1975:** Not recorded. **2009/10:** Rare. On *Crataegus* twigs at southern edge of South Jerusalem Wood, perhaps overlooked elsewhere.

Bacidia cf. *sulphurella* **1975:** Not recorded. **2009/10:** Rare.

Buellia griseovirens **1975:** Not recorded. **2009/10:** Occasional. Extensive colonies are present locally on lightly shaded, mature *Fraxinus* trunks along Main Ride and in South Jerusalem Wood.

Caloplaca cf. *arcis* **1975:** Not recorded. **2009/10:** Rare. On a concrete marker post “NRA meter 150”, South Jerusalem Wood.

Caloplaca citrina sens.lat. **1975:** Not recorded. **2009/10:** Rare. On a single wooden fence post.

Caloplaca oasis **1975:** Not recorded. **2009/10:** Rare. On concrete marker post “NRA meter 150”, South Jerusalem Wood.

Caloplaca obscurella **1975:** Not recorded. **2009/10:** Rare. On dead *Salix* bark, South Jerusalem Wood.

Candelariella refexa **1975:** (Recorded tentatively) Scarce. On old *Fraxinus* branch in south-east margin and on *Fraxinus* in south margin of Forty Acre Wood. **2009/10:** Occasional.

Candelariella vitellina **1975:** Not recorded. **2009/10:** Rare. On a single wooden fence post.

Chaenotheca ferruginea **1975:** Scarce. On south side of *Quercus* in north-west section of Forty Acre Wood. **2009/10:** Rare. On mature *Quercus* trunk, North Jerusalem Wood.

Cladonia chlorophaea **1975:** Not recorded. **2009/10:** Occasional.

Cladonia coniocraea **1975:** Scarce. Amongst mosses at base of *Fraxinus*. **2009/10:** Rare.

Cladonia fimbriata **1975:** Scarce. Amongst mosses at base of *Fraxinus*. **2009/10:** Rare. Recorded tentatively.

Cladonia polydactyla **1975:** Not recorded. **2009/10:** Rare. Growing with *Cladonia coniocraea* on the trunk of a *Betula* in North Jerusalem Wood.

Cliostomum griffithii **1975:** Scarce. Covering the underside of a dead sloping bole of *Acer pseudoplatanus* in margin of South Jerusalem Wood. **2009/10:** Rare.

Dimerella pineti **1975:** Not recorded. **2009/10:** Occasional.

Diploicia canescens **1975:** Scarce. At base of old *Fraxinus* in south-east margin of Forty Acre Wood. At base of *Acer pseudoplatanus*, *Betula*, *Fraxinus*, *Hedera*, *Quercus* and *Ulmus* in margin of South Jerusalem Wood. **2009/10:** Rare. Well developed on *Quercus*, *Acer pseudoplatanus*, *Hedera* and other along southern margin of South Jerusalem Wood.

Enterographa crassa **1975:** Scarce. Several plants at base of two mature *Fraxinus* in north-west section of Forty Acre Wood. **2009/10:** Occasional. Most abundant in the northern half of Forty Acre Wood where it grows at the base of a range of tree species. A sterile pycnidiate specimen is present on a rotting *Acer pseudoplatanus* trunk. Scattered individuals in South Jerusalem Wood and North Jerusalem Wood.

Evernia prunastri **1975:** Occasional. Chiefly on *Fraxinus*. **2009/10:** Rare.

Flavoparmelia caperata **1975:** Occasional. Always forming extensive sheets on sloping *Fraxinus* boles where it occurs. On six boles on Main Ride, on six or more boles in spinney in East Meadows, on four or more boles in Forty Acre Wood and on one bole in eastern section of North Jerusalem Wood. **2009/10:** Occasional.

Graphis elegans **1975:** Scarce. Several plants at base of mature *Fraxinus* and on a nearby shrub in north-west section of Forty Acre Wood. The plants are unhealthy, being overgrown with a thin film of alga. **2009/10:** Not recorded.

Graphis scripta **1975:** Not recorded. **2009/10:** Occasional. On *Carpinus* in North Jerusalem Wood and locally abundant on *Corylus* in Forty Acre Wood.

Hyperphyscia adglutinata **1975:** not recorded. **2009/10:** Occasional. On the bark of several trees and shrubs including *Acer pseudoplatanus* and *Hedera helix*. Most records are from South Jerusalem Wood.

Hypogymnia physodes **1975:** Frequent. Chiefly on *Fraxinus*. **2009/10:** Rare. A single record from bark of felled timber extracted from the site.

Hypogymnia tubulosa **1975:** Scarce. On boles and branches of *Fraxinus*. **2009/10:** Not recorded.

Hypotrachyna revoluta **1975:** Occasional. Abundant on a number of *Fraxinus* boles. One of the most common foliose lichens on the fen. **2009/10:** Occasional. Most frequent beside the Main Ride.

Jamesiella anastomosans **1975:** Not recorded. **2009/10:** Scarce. On *Salix* in North Jerusalem Wood.

Lecania cyrtella **1975:** Not recorded. **2009/10:** Occasional. Most frequent on *Sambucus* in South Jerusalem Wood.

Lecanora albescens **1975:** Not recorded. **2009/10:** Rare. On concrete marker post "NRA meter 150", South Jerusalem Wood.

Lecanora chlarotera **1975:** Not recorded. **2009/10:** Occasional.

Lecanora conizaeoides **1975:** Abundant. On bark of many species. **2009/10:** Not recorded.

Lecanora dispersa **1975:** Not recorded. **2009/10:** Rare. On top of wooden fence post, southern boundary of South Jerusalem Wood.

Lecanora expallens **1975:** Occasional. **2009/10:** Frequent.

Lecanora pulicaris **1975:** Scarce. On *Fraxinus* in several parts of the fen. **2009/10:** Rare. A single record from felled timber extracted from the site.

Lecanora cf. *saligna* **1975:** Not recorded. **2009/10:** Rare. On wooden fencing north of North Jerusalem Wood.

Lecanora symmicta **1975:** Not recorded. **2009/10:** Rare.

Lecidella elaeochroma **1975:** Not recorded. **2009/10:** Occasional.

Lecidella stigmatea **1975:** Not recorded. **2009/10:** Rare. On concrete marker post “NRA meter 150”, South Jerusalem Wood.

Lepraria incana **1975:** Abundant on shaded bark in Forty Acre Wood; occasional at base of trees elsewhere. **2009/10:** Occasional. On dry shaded bark.

Lepraria lobificans **1975:** Not recorded. **2009/10:** Occasional. On shaded bark and overgrowing mosses.

Melanelixia fuliginosa subsp. *glabratula* **1975:** Not recorded. **2009/10:** Rare. A single record from *Betula* branch, North Jerusalem Wood.

Melanelixia subaurifera **1975:** Scarce. On two trees in Forty Acre Wood. On two *Sambucus* in south margin of Snailwell Poor’s Fen. **2009/10:** Frequent.

Micarea denigrata **1975:** not recorded. **2009/10:** Rare. On sawn wood of fencing north of North Jerusalem Wood.

Micarea prasina s.lat. **1975:** Not recorded. **2009/10:** Rare. On rotting stump in South Jerusalem Wood and on *Betula* rootplate in North Jerusalem Wood.

Ochrolechia androgena **1975:** Scarce. On two mature *Fraxinus* on Main Ride. **2009/10:** Not recorded.

Opegrapha ochrocheila **1975:** Not recorded. **2009/10:** Occasional.

Opegrapha rufescens **1975:** Not recorded. **2009/10:** Occasional. Some extensive colonies are present on *Fraxinus* beside Main Ride.

Opegrapha varia **1975:** Not recorded. **2009/10:** Occasional.

Opegrapha vermicellifera **1975:** Not recorded. **2009/10:** Rare. Occasional in the northern half of Forty Acre Wood where it forms attractive mosaics with *Enterographa crassa*.

Opegrapha vulgaris **1975:** Not recorded. **2009/10:** Rare.

Parmelia sulcata **1975:** Occasional. Chiefly on *Fraxinus*. **2009/10:** Frequent.

Parmeliopsis ambigua **1975:** Scarce. Several plants on *Fraxinus* on Main Ride. **2009/10:** Not recorded.

Pertusaria amara **1975**: Occasional on *Fraxinus* in Forty Acre Wood. Two plants of form *isidiata* Harm. on *Fraxinus* on Main Ride. **2009/10**: Not recorded.

Pertusaria leioplaca **1975**: Not recorded. **2009/10**: Rare. A single record on mature *Corylus* in Forty Acre Wood.

Phaeophyscia orbicularis **1975**: Scarce. On *Thelycrania* (*Cornus*) in margin of High Wood. On exposed roots and at base of boles of *Acer pseudoplatanus*, *Fraxinus*, *Quercus* and *Ulmus* in margin of South Jerusalem Wood. **2009/10**: Occasional.

Phlyctis argena **1975**: Occasional. At base of trees. **2009/10**: Occasional. On trunks of mature *Fraxinus*.

Phylloblastia inexpectata **1975**: Not recorded. **2009/10**: Rare. Follicolous on evergreen shrubs near south end of Main Ride.

Physcia adscendens **1975**: Scarce. Several plants on *Sambucus* in south margin of Snailwell Poor's Fen. **2009/10**: Occasional.

Physcia tenella **1975**: Scarce. On old *Fraxinus* branch in south-east margin of Forty Acre Wood. Several plants on *Sambucus* in south margin of Snailwell Poor's Fen. Many plants on rotting *Sambucus* in margin of South Jerusalem Wood. **2009/10**: Occasional.

Physconia grisea **1975**: Scarce. Several plants on old *Fraxinus* branch in south-east margin of Forty Acre Wood. Two plants at base of *Betula* in margin of South Jerusalem Wood. **2009/10**: Occasional, including on *Prunus spinosa* in South Jerusalem Wood.

Porina aenea **1975**: Not recorded. **2009/10**: Rare.

Punctelia jeckeri **1975**: Not recorded. **2009/10**: Occasional.

Punctelia subrudecta **1975**: Local. On mature *Fraxinus* on Main Ride and in Forty Acre Wood. **2009/10**: Occasional.

Pyrrospora querneae **1975**: Scarce. On mature *Fraxinus* on Main Ride. **2009/10**: Occasional. On mature *Fraxinus* on Main Ride and in North Jerusalem Wood.

Ramalina farinacea **1975**: Scarce. One plant on rotting *Sambucus* in margin of South Jerusalem Wood. **2009/10**: Not recorded.

Rinodina oleae **1975**: Not recorded. **2009/10**: Rare. On wooden fence post north of North Jerusalem Wood.

Schismatomma decolorans **1975**: Not recorded. **2009/10**: Rare. On *Fagus* in North Jerusalem Wood and on a mature *Fraxinus* trunk near the east corner of Forty Acre Wood.

Scoliciosporum chlorococcum **1975**: Not recorded. **2009/10**: Rare. On fallen twigs in South Jerusalem Wood.

Trapeliopsis flexuosa **1975**: Not recorded. **2009/10**: Rare. On rotting fence rails north of North Jerusalem Wood.

Trapeliopsis granulosa **1975**: Scarce. On mature *Fraxinus* on Main Ride. **2009/10**: Not recorded.

Xanthoria calcicola **1975**: Not recorded. **2009/10**: Rare. On top of wooden fence post at southern edge of South Jerusalem Wood.

Xanthoria candelaria **1975**: Scarce. Several plants on old *Fraxinus* branch in south-east margin of Forty Acre Wood. On *Ulmus* in margin of High Wood. Many plants on rotting *Sambucus* in margin of South Jerusalem Wood. **2009/10**: Not recorded but this may be the same lichen that has been recorded as *Xanthoria ucrainica* in the more recent survey.

Xanthoria parietina **1975**: Not recorded. **2009/10**: Occasional.

Xanthoria polycarpa **1975**: Scarce. Several plants on *Sambucus* in south margin of Snailwell Poor's Fen. One plant on rotting *Sambucus* in margin of South Jerusalem Wood. **2009/10**: Rare. On fallen *Quercus* branch in Forty Acre Wood.

Xanthoria ucrainica **1975**: Not recorded but see *Xanthoria candelaria*. **2009/10**: Rare. On fallen branch in Forty Acre Wood.

References

- Barkman, J. J.** (1958). *Phytosociology and Ecology of Cryptogamic Epiphytes*. Van Gorcum, Assen, Netherlands.
- Coppins, A. M. and Coppins, B. J.** (2002). *Indices of Ecological Continuity for Woodland Epiphytic Lichen Habitats in the British Isles*. British Lichen Society.
- Hawksworth, D. L. and Rose, F.** (1970). Qualitative scale for estimating sulphur dioxide air pollution in England and Wales using epiphytic lichens. *Nature, Lond.* **227**: 145-148.
- Kassas, M.** (1951). Studies in the ecology of Chippenham Fen. II. Recent history of the fen, from evidence of historical records, vegetational analysis and tree-ring analysis. *J. Ecol.* **39**: 19-32.
- Kassas, M.** (1952). Studies in the ecology of Chippenham Fen. III. The Forty Acre Wood. *J. Ecol.* **40**: 50-61.
- Laundon, J. R.** (1973). Lichens of Wicken Fen. *Guides to Wicken Fen* **10**. National Trust, Wicken, Cambridgeshire.
- Laundon, J. R.** (1977). The Lichen Flora of Chippenham Fen, Cambridgeshire: A study of secondary woodland. *Nature in Cambridgeshire*, **20**: 11-20.
- Morris, M. G. and Perring, F. H.** (Editors) (1974). *The British Oak*. Botanical Society of the British Isles, c/o Faringdon, Berkshire.
- Powell, M.** (2010). The Lichens of Wicken Fen. *Nature in Cambridgeshire* **52**: 26-34.
- Smith, C. W., Aptroot, A., Coppins, B. J., Fletcher, A., Gilbert, O. L., James, P. W. and Wolseley, P. A.** (2009). *The Lichens of Great Britain and Ireland*. The British Lichen Society.
- Rackham, O.** (1975). *Hayley Wood. Its History and Ecology*. Cambridgeshire and Isle of Ely Naturalists' Trust, Cambridge.
- Spufford, M.** (1965). A Cambridgeshire community. Chippenham from settlement to enclosure. *Leicester University, Department of English Local History, Occasional Papers* **20**.