Tionscadal Soláthair Uisce
Water Supply Project

Environmental Impact Assessment Report (EIAR)

Volume 6 of 6: Appendices

(Appendix 8.7) Lichen Survey Report

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Uisce Éireann
Irish Water

Jacobs

TOBIN

Evaluation Survey of the Lichen Flora of Parteen Basin and Wetlands at Birdhill

for Tobin Engineering
2020

Paul Whelan (lichenologist)

Introduction

This survey was commissioned by Patrick J TOBIN & Co. Ltd, in 2020. The aim of the survey was to evaluate the conservation value of woodland and hedgerows near Parteen Basin on the River Shannon, south of Lough Derg and also at wetlands near Birdhill, Co. Limerick.
The River Shannon is the longest river in Ireland, flowing for approximately 369km., draining an area of approximately 16.850 km2 or one fifth the area of Ireland.
Two sites were surveyed: one lies against the Parteen basin (Site 1) and the second (Site 2) lies a few kilometres to its East.

Method

Field work was carried out over two days.

Epiphytic lichen specimens were collected from twigs, tree bark and moss for confirmation and/or identification using a microscope.

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All survey records will be submitted to the National Biodiversity Data Centre, Waterford.

Indices of Ecological Continuity

No indices for the ecological evaluation of woodlands exist specifically for Ireland. However, fieldwork carried out by UK lichenologists over the last 40 years or so has demonstrated that the Indices of Ecological Continuity for Woodland Epiphytic Lichen Habitats in the British Isles (Coppins & Coppins) 2002, can be used to successfully evaluate Irish Woodlands and Hedgerows.
To quote from the publication 'on-going field work has largely confirmed the validity of the lichen species selected as indicators. And 'except for the updating of nomenclature, the main lists of indicator species remain unchanged'.

Site assessment and lichen indices for epiphytic lichen habitats of deciduous (broad-leaved) woodlands in Ireland fall under two indices:

1. RIEC: (Revised Index of Ecological Continuity; Rose 1976, 1993, Rose & Coppins 2002)
2. NIEC: (New Index of Ecological Continuity; Rose 1992, 1993, Hodgetts 1992, Woods & Orange 1999, Gilbert 2000)

RIEC / NIEC value is calculated by the formula n/20 x 100. In the case of sites 1 and 2 the NIEC = 0 and RIEC = 0. These are the lowest possible values and show no indication of ecological continuity.

Site 1 – Parteen Basin

Overview
The site is approximately 2.6ha; bounded by the Parteen Basin to the west and woodland to the east. Woodland consists of a few mature coniferous trees and much under story scrubby smaller trees of willow and hazel. The lichen flora is best described as a poor assemblage of common species, mostly crustose. It is likely that the woodland developed on spoil produced from the creation of the Parteen Basin. Few of the trees have reached maturity, most are long and slender and struggle to obtain light. The woodland shows a high degree of moss and ivy cover and some grazing.

34 lichen species were recorded. Conservation value for all recorded species is Least Concern.

Species Conservation Evaluation

Arthonia didyma	Least Concern
Arthonia punctiformis	Least Concern
Arthonia radiata	Least Concern
Arthopyrenia analepta	Least Concern
Arthopyrenia punctiformis	Least Concern
Cladonia pyxidata	Least Concern
Evernia prunastri	Least Concern
Diploicia canescens	Least Concern
Diplotomma alboatrum	Least Concern
Enterographa crassa	Least Concern
Flavoparmelia caperata	Least Concern
Fuscidea lightfootii	Least Concern
Graphis scripta	Least Concern
Hypogymnia physodes	Least Concern
Lecanora albescens	Least Concern
Lecanora chlarotera	Least Concern
Lecidella elaeochroma	Least Concern
L. elaeochroma f. elaeochroma	Least Concern
Lepraria lobificans	Least Concern
Melanelia subaurifera	Least Concern
Normandina pulchella	Least Concern
Opegrapha atra	Least Concern
Parmotrema perlatum	Least Concern
Pertusaria hymenea	Least Concern
Pertusaria lactescens	Least Concern
Pertusaria pertusa	Least Concern
Phaeographis smithii	Least Concern
Phaeophyscia orbicularis	Least Concern
Physcia adscendens	Least Concern
Physcia aipolia	Least Concern
Pyrenula macrospora	Least Concern
Ramalina farinacea	Least Concern
Ramalina fraxinea	Least Concern
Xanthoria parietina	Least Concern

There is no evidence of ecological continuity.

Young trees, probably growing on spoil from Parteen Basin development, are low in lichen biodiversity.

Woodland interior is ungrazed or maintained. Tree trunks are consequently overgrown with ivy, reducing lichen substrate.

The few mature trees in the woodland are covered in moss and crustose fungi, indicating low light levels. Lichens need light.

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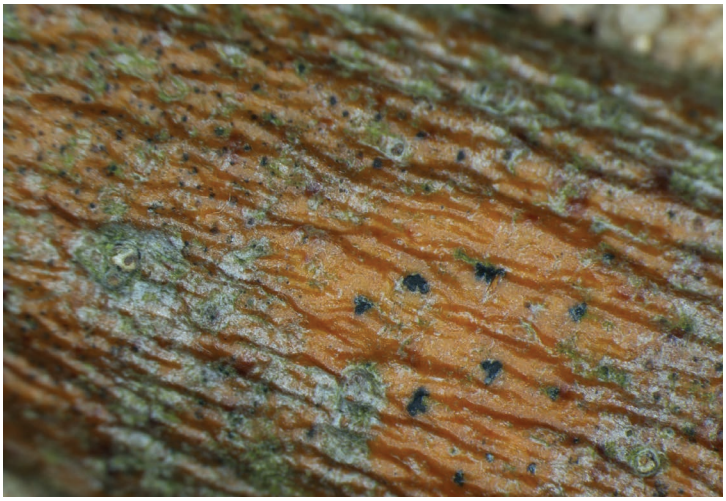

Arthonia punctiformis, an early coloniser that avoids direct sunlight.
Occurs on the east side of young trees bordering the Parteen Basin.

Arthopyrenia analepta, an early coloniser of shaded aspects of trees. Likes humidity.

Occurs on the east side of young trees bordering the Parteen Basin where humidity is high.

Diplocia canescens, an indicator of pollution. Likes humidity.

Physcia aipolia, an indicator of farm (nitrate) pollution.

Arthopyrenia analepta, an early coloniser of shaded aspects of trees. Likes humidity.

Left: *Lecidella elaeochroma* (black dots) and other associated crustose lichens with least concern conservation value.

Below: *Pertusaria pertusa* on a twig.

Site 2 – Birdhill

Overview
The site is approximately 27.5ha. and is a rush dominated wet grassland. The hedging consist of gorse, hawthorn and briers. To the south is a coniferous plantation which has not been thinned out. Lack of light has prevented lichens establishing themselves in the plantation. Some common species were found on its periphery.

38 lichen species were recorded. Conservation value for all recorded species is Least Concern.

Species Conservation Evaluation

Arthonia didyma	Least Concern
Arthonia punctiformis	Least Concern
Arthonia radiata	Least Concern
Arthopyrenia analepta	Least Concern
Candelaria concolor	Least Concern
Chrysothrix candelaris	Least Concern
Dimerella lutea	Least Concern
Diploicia canescens	Least Concern
Diplotomma alboatrum	Least Concern
Enterographa crassa	Least Concern
Flavoparmelia caperata	Least Concern
Graphis scripta	Least Concern
Hypotrachyna revoluta	Least Concern
Lecanora albescens	Least Concern
Lecanora chlarotera	Least Concern
L. elaeochroma f. elaeochroma	Least Concern
Lepraria lobificans	Least Concern
Melanelia subaurifera	Least Concern
Normandina pulchella	Least Concern
Opegrapha atra	Least Concern
Opegrapha vulgata	Least Concern
Parmelia sulcata	Least Concern
Parmotrema perlatum	Least Concern
Pertusaria albescens var. albescens	Least Concern
Pertusaria hymenea	Least Concern
Pertusaria pertusa	Least Concern
Phaeophyscia orbicularis	Least Concern
Physcia adscendens	Least Concern
Physcia tenella subsp. tenella	Least Concern
Physconia distorta	Least Concern
Pyrenula macrospora	Least Concern
Ramalina fastigiata	Least Concern
Ramalina fraxinea	Least Concern
Thelotrema lepadinum	Least Concern
Xanthoria parietina	Least Concern
Evernia pruinastri	Least Concern
Thelotrema lepadinum	Least Concern
Xanthoria parietina	Least Concern

There is no evidence of ecological continuity.

Above: Wetland fields with hawthorn hedging interdispersed with some mature trees. A richer range of species was expected because of the presence of hawthorn however the excessive use of nitrate fertiliser has reduced the lichen biodiversity.

Left: *Pertusaria pertusa* (white area).

Left: A typical assemblage of foliose lichens on twigs that reach out from the shaded interior of the hedgerows.

Left: *Melanelia subaurifera.*

Left: *Ramalina fastigiata.*

Left: A close up of *Opegrapha vulgata*.

END