

Hiding in plain sight

Ireland's woodland cryptogamic botany

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Cryptogams – What are they?

Spore-producers (not pollen-producers)

“Lower Plants”

Orphans of Rio (Fungi) - David Minter

Algae - Marine and Terrestrial

Fungi – Lichenised Fungi may grow with Algae, Cyanobacteria and Yeasts

Bryophytes – Mosses, Liverworts, Hornworts

Ferns – Vascular cryptogams, Pteridophytes

Numbers of Species per Group in Ireland to date

Algae	1,000s
Bryophytes	730
Fungi including Lichens	5,500
Ferns	30
Vascular Plants	815

Comparison with other Biological Groups in the World

Bryophytes	16,236
Fungi	99,000 of a predicted 1,500,000
Protoctists	28,871 (Myxomycetes, Protozoa)
Vascular Plants	281,621
Birds	9,990
Mammals	5,487
Insects	>1,000,000

Chapman (2009)

Sources of Irish Cryptogamic Data

- NBDC – FRDBI, BBS, BMS, BLS etc.
- NBN and CEDaR
- University Theses
- Publications
- Websites e.g. Algaebase.org
- Herbarium specimens
- Historic work – e.g. Admiral Jones' Herbarium

Our own Irish studies on Cryptogams

- Moneypoint Thesis
- EIS surveys
- Surveys for Landowners
- International Field Meetings
- WMNP and Coillte Study
- Tellus Border EpiAir
- Bioblitz surveys
- Brackloon Wood FERG
- National Botanic Gardens Study
- OPW site surveys
- Northern Ireland Lichen Survey
- LichenIreland Surveys
- Postgraduate Surveys
- Training exercises
- Work with NPIC
- Exhibitions, Festivals



Come with me through the magic... gate?!



Cryptogams of our Native Irish Woodlands





What use are Cryptogams??!

- Recyclers of nutrients, filterers of air and water
- Providing access to more resources e.g. mycorrhizae
- Food
- Shelter/Protection
- Antibiotics
- Bioindicators - habitat quality, longevity, change
- Dyeing, perfumes, curry additives, pharmaceuticals
- Early life analogues; “living fossils”
- Quietly adding to a tourist’s experience of Ireland!
- Provide conservation protection



European Council for the Conservation of Fungi



Links to National Red Lists

[Austria](#)

[Denmark](#)

[Sweden](#)

[Switzerland](#)

Red Lists as pdf or Excel Files

[Armenia](#)

[Bulgaria](#)

[Czech Republic](#)

[Estonia](#)

[Montenegro](#)

[Russia](#)

[Slovakia](#)

[Sweden](#)

Links to national distribution maps

[Austria](#)

[Norway](#)

[Switzerland](#)

[Ukraine](#)

[United Kingdom](#)

Protected species

[Montenegro - Protected species](#)

[Slovak Republic - Protected species](#)

Where are Cryptogams in our woods?



Cultural habitats/Built environments



Waterfalls



Western Woods



Scots Pine – *Pinus sylvestica*



Coronation Plantation in Co. Wicklow is a superb habitat for lignicolous and late stage tree trunk lichens and fungi

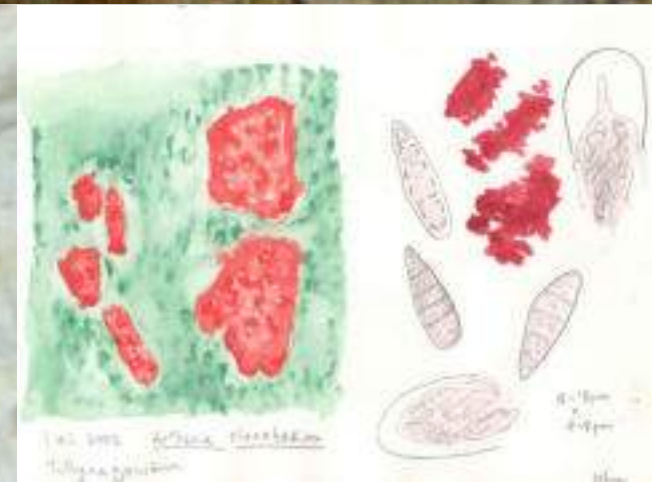
Oak Woods – *Quercus petraea*



Willow Woods - *Salix* spp.



Hazel Woods – *Corylus avellana*



Ash Woods – *Fraxinus excelsior*



Other Trees important for Cryptogams in Ireland – not only native trees

- *Ilex aquifolium* Holly
- *Malus domestica* Apple
- *Fagus sylvatica* Beech
- *Tilia europaea* Lime
- *Acer pseudoplatanus* Sycamore
- *Larix decidua* Larch



Riparian/Wet Woods/Flooding



Irish Scientists working on Cryptogams

- Mycology including Lichenology
- Bryology
- Cryptogamic Pathology/Invasive Species
- Algology
- Pteridology

Total < 20 people

This number is going down – Hidden in plain sight?

Initiatives for Cryptogams

Europe

- European Red Lists
- European Council for the Conservation of Fungi
- COST Actions
- European Specialist Associations and Societies
- CBS-KNAW

More International Efforts

- Biodiversity Convention (CBD)
- Index Fungorum – International
- GenBank - NCBI

Threats to Irish Woodland Cryptogams

Tree Loss and Habitat Destruction



“Empty Niche” Problem

a lack of local source material



Honey Fungus – *Armillaria* spp.



Ivy - *Hedera helix* and other lianas



Rural agricultural pollution

Eutrophication, Particulate Matter



New Diseases and Pests



Tree Diseases

Ash Dieback & Implications for Cryptogams



Opportunities

- Awareness, Appreciation
- HUGE Biodiversity
- Identification of sites of longevity
- Knowledge
- Food
- Tourism
- Extending the “wild” places from refugia
- Soil Directive preparation
- Protection of our environment



Training Courses

- Marine and sub-aerial algae (and cyanobacteria!) identification
- Edible fungi species identification
- Tree fungal pathogen identification
- Grow your own native Irish fungi for food
- Growing native trees with native mycorrhizal associations
- Check the mycorrhizal associations of your trees
- Fun with Fungi – Finding, Cooking, Dining!
- Irish Woodlands from the Cryptogamic perspective
- Rural air pollution and our Epiphyte biodiversity
- Phytosanitary Measures you can take

Learning what is safe to eat and what is not



Magical places for Irish Cryptogams

- Brackloon Wood
- Ardnamona
- Derkmore
- Glengarriff
- Cathair Chomáin
- Correl Glen
- Gole Wood
- Barrigone Quarry
- West Wexford woods
- Glenflesk
- Glen of Clab
- Powerscourt Deerpark
- Killarney
- Killarney (so good we named it twice!)



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Thank you!

Go raibh maith agat!

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