

## 5 IS THE LICHEN BEARD-LIKE, HAIR-LIKE, OR STRAP-LIKE?

S41 *Usnea florida* Witches whiskers



**Form** Shrubby tufts to 10cm on twigs and branches in the canopy with very distinctive fruits.  
**Colour** Pale grey-green.  
**Soredia/Isidia** None.  
**Fruit** Usually abundant and very distinctive; a grey-green disc (up to 1cm diameter) with abundant grey-green projections from the margin, like the sun's rays or eyelashes.  
**Notes** Always without soredia and isidia. Other *Usnea* species are usually not so fertile. Most similar is *U. subfloridana* but this species has smaller discs (if any) and develops minute, wart-like soralia.

S41 *Usnea articulata* String-of-sausages lichen



**Form** Tassels of up to 1m, of typically smooth threads, hanging down or across the substrate but rarely anchored to it. Main stems resemble strings of sausages with inflated and constricted segments. Spiny branches and comma-shaped pseudocyphellae sometimes present.  
**Colour** Grey-green.  
**Soredia/Isidia** None.  
**Fruit** None.  
**Notes** Likes tree canopies and dry open situations. Highly sensitive to sulphur dioxide pollution, it was once much more widespread in Britain but now appears to be making a comeback, perhaps due to improved air quality and a warming climate.

*Ramalina farinacea* Shaggy strap lichen



**Form** Short tufts (to 10cm) of narrow, flattened branches.  
**Colour** Pale grey-green to yellow-green.  
**Soredia/Isidia** Soredia in discrete oval soralia along branch margins.  
**Fruit** Rare.  
**Underside** Same colour as upper surface.  
**Notes** Similar to *Evernia prunastri* (see right), short-tufted *Usnea* species (but these have cylindrical branches) and other *Ramalina* species; *R. farinacea* is the most common *Ramalina* species on trees with acid bark.

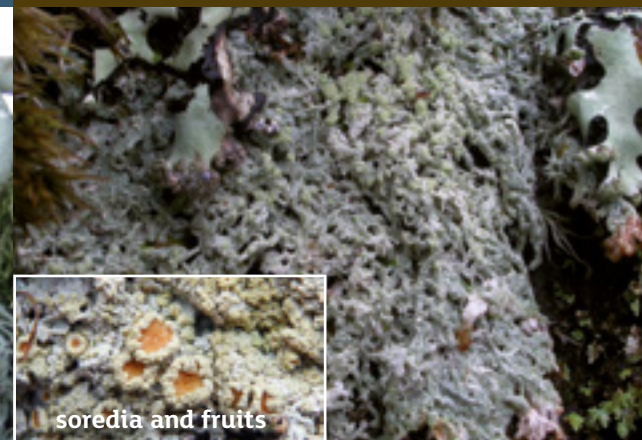
*Evernia prunastri* Oak moss



**Form** Short tufts (to 10cm) of flattened branches with forked tips, often with a network of ridges.  
**Colour** Pale grey-green to pale yellow-green.  
**Soredia/Isidia** Soredia are white and rounded, and taste very bitter (rub with a wet finger and taste).  
**Fruit** Very rare.  
**Underside** Whitish, occasionally with green patches.  
**Notes** Similar to *Ramalina farinacea* which has narrower lobes, and the upper and lower surfaces are the same colour. A common species on a range of deciduous trees and used in the perfume industry.

## 6 IS THE LICHEN CRUSTY, LUMPY OR PORRIDGE-LIKE?

*Ochrolechia androgyna* A cudbear lichen



soredia and fruits

**Form** A thick, warty crust, usually without fruits. Can form extensive patches.  
**Colour** Whitish, pale grey to grey or greenish white.  
**Soredia/Isidia** Round to irregular pale-green soralia that can join to form a continuous crust.  
**Fruit** Occasional; pale pinkish to orange-brown disc with a thick rim with soredia.  
**Notes** When fertile often mistaken for *O. tartarea* (which has no soredia). This is a common species in north and west Britain in a range of lichen communities on acidic trees and rocks. It is used in the production of traditional cudbear dye.

*Ochrolechia tartarea* A cudbear lichen



**Form** A thick, warty crust with numerous "jam-tart" fruits. Can form extensive patches.  
**Colour** White, pale grey to grey.  
**Soredia/Isidia** None.  
**Fruit** Frequent; dull orange-pink to pale-brown disc, thick rim.  
**Notes** Similar to *O. androgyna*. Also used in the production of traditional cudbear dyes.

*Pertusaria amara* Bitter wart lichen



**Form** A thin or thickish warty crust. Can form extensive patches.  
**Colour** Pale grey, grey to greenish grey.  
**Soredia/Isidia** Soredia are white and rounded, and taste very bitter (rub with a wet finger and taste).  
**Fruit** Very rare.  
**Notes** Similar to another common wart lichen, *P. albescens* (but this does not taste bitter). Both of these wart lichens are common in a range of lichen communities on trees.

*Phaeographis dendritica* A dark-spored script lichen



S41 *Melaspilea lentiginosa*

**Form** Smooth crust, often white powdery, sometimes cracked like crazy paving. To about 5cm  
**Colour** Creamy white, pale grey to grey-green.  
**Soredia/Isidia** None.  
**Fruit** Flat and black but sometimes looking frosted, star-shaped or richly branched with pointed tips.  
**Notes** A member of the Graphidion rather than Parmelion. Relatively common on smooth-barked trees and associated with ancient woodland. Host to the S41 parasitic fungus *Melaspilea lentiginosa* which suppresses the star-shaped fruits in favour of its own smaller, fleck-like ones (inset).

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©Plantlife, 2nd edition June 2020  
ISBN: 978-1-910212-99-8

Designed by rjpdesign.co.uk  
Printed by Blackmore, Shaftesbury, Dorset

This guide is based on text written for Plantlife Cymru and Plantlife Scotland by Andy Acton and Anna Griffith.

All photos © Acton/Griffith 2013 except *Melaspilea lentiginosa* © Bryan Edwards 2008, *Usnea florida* © Alan Hale 2013, *Parmelinopsis minarum* © Neil Sanderson 2008, *Platismatia glauca* © Ray Woods 2007 and the following © Tim Wilkins 2012: *Hypotrachyna taylorensis*, *Parmotrema crinitum*, *Phaeographis dendritica* and *Usnea articulata*.



## Some key features to look for when identifying lichens

Use a hand lens (preferably x10 magnification) to examine them.

**Cilia** Wiry black hairs on the upper surface or lobe margins.

**Colour** Of upper (and if visible, the lower) surface. The colour of a species can vary - for example, depending on whether it is wet or dry.

**Cyphellae** and **pseudocyphellae** Pores or cracks that expose the interior of the lichen, appearing as paler spots or lines on the surface.

**Fruits** Reproductive structures that produce spores. They can be round discs, pimple-like or globular, and their colour often contrasts with the lichen surface.

**Hypothallus** A dark mat on the lower surface, often only visible between lobes or at the margins. It may be thin and visible only as a dark stain, but when well developed may be thicker and velvet-like.

**Isidia** Tiny projections on the surface that may be nodular, granular, finger-like, or branched like tiny fragments of coral. They are a means of vegetative reproduction.

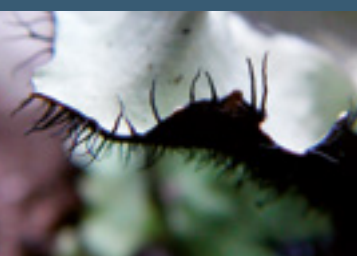
**Lobe** The rounded "leaf" of a leafy lichen.

**LOBULES** Small "secondary" lobes that develop on the margins or on the surface of lobes.

**Rhizines** Root-like structures that may be forked, branched, or just simple. Stiff wiry black rhizines occur on the undersides of many Parmelion species.

**Soredia** Floury powder or coarse granules that often occur along ridges or cracks on the surface, or on the lobe margins. They may be diffuse or arise in discrete structures (termed **soralia**). Like isidia, they are a means of vegetative reproduction.

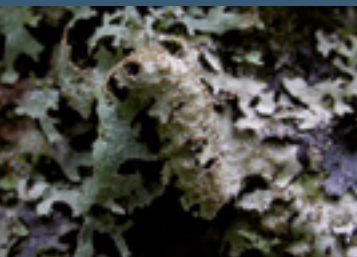
Cilia on *Parmotrema perlatum*



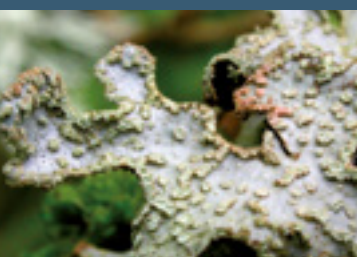
Fruits on *Ochrolechia tartarea*



Isidia on *Parmelia saxatilis*



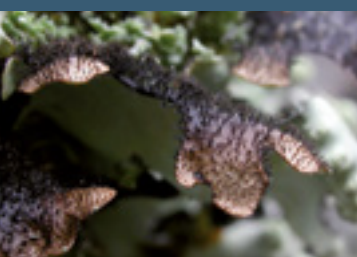
Soredia on *Parmelia sulcata*



Pseudocyphellae on *Cetrelia olivetorum*



Rhizines on *Hypotrachyna laevigata*



# Plantlife

## Lichens of temperate rainforest in South West England

Guide 2 The *Parmelion* lichens of birch, alder and oak





This guide is for anyone interested in identifying some of the more conspicuous lichens of temperate rainforest in South West England. Different species of lichen often grow together, forming distinct communities. The *Parmelion* community grows on trees with acidic bark, such as alder, birch and oak.

A companion guide (Guide 1) looks at the *Lobarion* community of lichens that grows on trees with mildly acidic or alkaline bark.

## What is a lichen?

A lichen is a special association between one or two fungi species (the 'mycobiont') and a green alga or blue-green alga (the 'phycobiont'). The mycobiont forms the main body of the lichen, providing an outer surface that protects the phycobiont underneath which manufactures food. Each lichen has its own distinct species of fungus, but all lichens share a small number of phycobiont species; in most cases this is a green alga.

## What is temperate rainforest?

Temperate rainforest is a type of usually ancient natural or semi-natural, broad-leaved woodland found in western Britain and Ireland where the climate is mild and wet due to the influence of the Gulf Stream. Although often dominated by, and thought of as, oak woods, they include a mix of other tree species - for example, birch, alder, ash and hazel. In fact, upland ash woods and Atlantic hazel woods are some of the most important temperate rainforest habitats.

## Why is South West England's temperate rainforest important for lichens?

Temperate rainforests have a long link to the past, with many sites having supported woodland for thousands of years. They are less susceptible to large-scale management changes - for example, woodland clearance or intensive coppice management, because of the difficult terrain on which they grow - and they have escaped the worst impacts of air pollution that have had a severe impact on lichens in particular since the industrial revolution. These factors, combined with the damp, mild Atlantic climate, have created these special habitats in which these important species survive. Because of this, some of these are now used as indicators of high-quality wildlife habitats.

Many of these lichens are not found in other parts of Britain and Europe, and some are globally rare. A number of species are considered of "principal importance for the conservation of biodiversity in England" under Section 41 of the Natural Environment and Rural Communities Act (2006); these are indicated in the guide by "S41". Further details of species conservation status can be found in the GB Red List (see books section).

## Finding and identifying lichens

Parmelion species of lichen occur on bark, or on mats of mosses/liverworts growing over bark. Some can also be found on mossy boulders and rocky outcrops. In very humid situations they may grow directly on rock. The occurrence of pale grey leafy lichens and extensive areas of whitish crusts on tree trunks is a good indication of the presence of this community. Good temperate rainforest will often have populations of a range of the species described in this guide, and may include scarce or rare species.

To identify a lichen first look at its growth form:

- Does it consist of leafy lobes? If so, see Section 1 of this guide
- Does it consist of small or tiny leafy lobes that look like roof-shingles? If so, see Section 2 of this guide
- Is it crusty or powdery? If so, see Section 3 of this guide
- Is it jelly-like when wet? If so, see Section 4 of this guide

The key features to look for when identifying lichens are described on the back page. To see these features well, and to fully appreciate the beauty of lichens, you will need to use a magnifier or a hand lens of x10-15 magnification.

Please note that scientific names should always be used when recording.

## Further information

### Books

Lichens: An Illustrated Guide to the British and Irish Species, Frank Dobson, 7th Edition (2018), Richmond Publishing Co Ltd. Lichens, Oliver Gilbert (2000), Collins New Naturalist series, Harper Collins.

A Conservation Evaluation of British Lichens and Lichenicolous Fungi, Woods & Coppins (2012), JNCC <http://jncc.defra.gov.uk/page-6197>

This is the current Red List for lichens in Great Britain.

### Websites

[www.britishlichensociety.org.uk](http://www.britishlichensociety.org.uk) The British Lichen Society (BLS) website provides a wide range of information about all aspects of lichens and lichenology.

[www.nbnatlas.org](http://www.nbnatlas.org) The NBN Atlas hosts an up-to-date database of British lichen distribution.

[www.fungi.myspecies.info](http://www.fungi.myspecies.info), [www.dorsetnature.co.uk/Dorset-lichen.html](http://www.dorsetnature.co.uk/Dorset-lichen.html) and [www.uklichens.co.uk](http://www.uklichens.co.uk) are good websites for photographs and information on lichen species.

## 1 IS THE LICHEN LEAFY WITH NUMEROUS BLACK, WIRY RHIZINES ON THE UNDERSIDE?

### *Hypotrachyna laevigata* Smooth loop-lichen



**Form** Smooth, narrow lobes with square-cut tips. To 15cm wide.  
**Colour** Pale grey to pale blue-grey.  
**Soredia/Isidia** Discrete globular soralia at lobe tips.  
**Fruit** Scarce; dark brown disc with a rim.  
**Underside** Black with numerous branched black rhizines.  
**Notes** Similar to *H. taylorensis* but that species has no soralia and forms scruffy tubes.

### *Hypotrachyna taylorensis* Tailed loop-lichen



**Form** Densely overlapping lobes, looks scruffy; old lobes often hang down and roll up to form distinctive tubes. To 15cm wide.  
**Colour** Pale grey to pale green-grey, often with brown tips.  
**Soredia/Isidia** None.  
**Fruit** Rare.  
**Underside** Black, dark brown near margins, numerous black rhizines.  
**Notes** Similar to *H. laevigata* but that species has soredia and doesn't roll up into scruffy tubes.

## 2 DO THE LOBES HAVE WAVY MARGINS AND/OR THE UNDERSIDE HAVE A BARE AREA NEAR THE MARGIN?

### *Parmotrema crinitum* Desperate Dan



**Form** Scruffy, wavy lobes with divided margins, isidia and stubble-like black hairs. To 15-20cm diameter.  
**Colour** Pale grey to pale green-grey.  
**Soredia/Isidia** Simple or coral-like isidia, often with protruding black hairs (cilia).  
**Fruit** Very rare.  
**Underside** Black with simple rhizines and a brown naked zone at margin.  
**Notes** Similar to *Parmelinopsis horrescens* (not illustrated) but this is a smaller and more intricate lichen, often with a partly shiny surface, and to *P. minarum* (both rare in the SW).

### *Parmotrema perlatum* Sea-storm lichen



**Form** Lobes with raised wavy margins, often with scattered black cilia. To 15-20cm diameter.  
**Colour** Pale grey to pale green-grey.  
**Soredia/Isidia** Soredia in discrete globular or lip-shaped soralia  
**Fruit** Rare.  
**Underside** Black with a few simple rhizines and a brown-black naked zone at the margin.  
**Notes** Common in a range of habitats in western Britain, similar to *P. crinitum* and *Cetrelia olivetorum*.

## 3 ARE THE LOBES INFLATED AND HOLLOW, WITH A SMOOTH UNDERSIDE WITHOUT BLACK RHIZINES?

### *Hypogymnia physodes* Heather rags



**Form** Inflated hollow lobes, with lobe tips often raised to show brown underside, or split to reveal distinctive soralia. To 10cm diameter.  
**Colour** Pale grey to green-grey.  
**Soredia/Isidia** Lobe tips split, turn up and develop soredia on the underside.  
**Fruit** Scarce; red-brown disc with a rim.  
**Underside** Black, brown near margin without rhizines.  
**Notes** Similar to *H. tubulosa* which has globular soralia on un-split lobe tips. Also similar to *Menegazzia terebrata*.

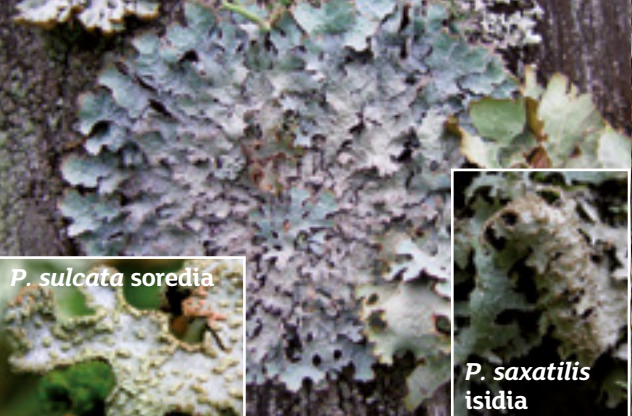
### *Menegazzia terebrata* Tree flute



**Form** Inflated hollow lobes, with distinctive holes. Often forms neat rosettes closely pressed to the substrate. To 10cm diameter.  
**Colour** Pale grey to pale green-grey.  
**Soredia/Isidia** Soredia in discrete rounded soralia.  
**Fruit** Very rare; disc pale or red-brown.  
**Underside** Black without rhizines.  
**Notes** Similar to *Hypogymnia physodes*, which has distinctive soralia and lacks holes in lobes.

## 4 DOES THE LICHEN RESEMBLE CORAL?

### *Parmelia saxatilis* Grey crottle and *P. sulcata* Powdered crottle



**Form** Two very similar and common leafy species with white ridges giving an appearance like that of hammered metal. To 20cm.  
**Colour** Pale grey with white flecks and ridges.  
**Soredia/Isidia** *P. saxatilis* has simple or coral-like isidia which are often brown-tipped, whilst *P. sulcata* has soredia.  
**Fruit** Occasional; red-brown to dark-brown disc which is often isidiate (*P. saxatilis*) or sorediate (*P. sulcata*) on the margin.  
**Underside** Black, brown at margin with numerous simple or occasionally forked black rhizines.  
**Notes** These species are common in a range of lichen communities and are used to make traditional dyes.

### *Parmelinopsis minarum* New Forest Parmelia



**Form** Small irregular patches with dense rounded indented lobes. To 7cm.  
**Colour** Grey-white upper surface (may be obscured by isidia).  
**Soredia/Isidia** Crowded isidia on lobe surface; abundant black cilia on lobe margins.  
**Fruit** Very rare, a dark brown disc.  
**Underside** Black, browner towards the tips, typically with simple rhizines.  
**Notes** Similar to *P. horrescens* and *Parmotrema crinitum* which have black hairs (cilia) protruding from their isidia.

### *Cetrelia olivetorum* Speckled sea-storm lichen



**Form** Lobes with raised wavy margins and distinctive white flecks (pseudocyphellae). To 10cm diameter.  
**Colour** Pale grey to pale green-grey, sometimes tinged with brown.  
**Soredia/Isidia** Soredia on margins of older lobes.  
**Fruit** Rare.  
**Underside** Black with scattered simple rhizines and a brown-black naked zone at the margin.  
**Notes** Similar to *P. perlatum* but that species has no white spots on the lobe surface.

### *Platismatia glauca* Frilly lettuce



**Form** Frilly lobes with wavy divided margins and white flecks and ridges (pseudocyphellae). To 15cm, often forming extensive patches.  
**Colour** Pale grey-green to whitish-green, sometimes tinged with brown, and often with reddish or pinkish patches on older lobes.  
**Soredia/Isidia** Often with simple to coral-like isidia or granular soredia on margins.  
**Fruit** Very rare.  
**Underside** Brown, white or black; if present, the few rhizines are simple or branched.  
**Notes** A common species on trees in a range of habitats.

### *Sphaerophorus globosus* A coral lichen



**Form** Tufted, to 5cm, with irregularly branched cylindrical stems, although if grazed - for example, by slugs - it can form neat, dense cushions.  
**Colour** Pale grey to pale green-grey, main branches often orange-brown.  
**Soredia/Isidia** None.  
**Fruit** Occasional; globular swellings at branch tips burst to reveal a dark powder of spores.  
**Notes** Similar to *Bunodophoron melanocarpum*.

### *Bunodophoron melanocarpum* Black-eyed Susan



**Form** Tufted, or forming tiers with branched, flattened stems, sometimes forming distinct tiers; branch tips divide to look like hands; fruits distinctive when present. To 10cm or more.  
**Colour** Whitish, pale grey to pale green-grey.  
**Soredia/Isidia** None.  
**Fruit** Occasional; branch tips swell to form a hood that has distinctive "black eyes" (a mass of spores) on the lower surface.  
**Underside** Paler below.  
**Notes** Similar to the much more common *Sphaerophorus globosus* which has cylindrical branches and the main branches are often orange-brown.