

Lichens in our treescapes

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B Benfield

Saving Devon's Treescapes

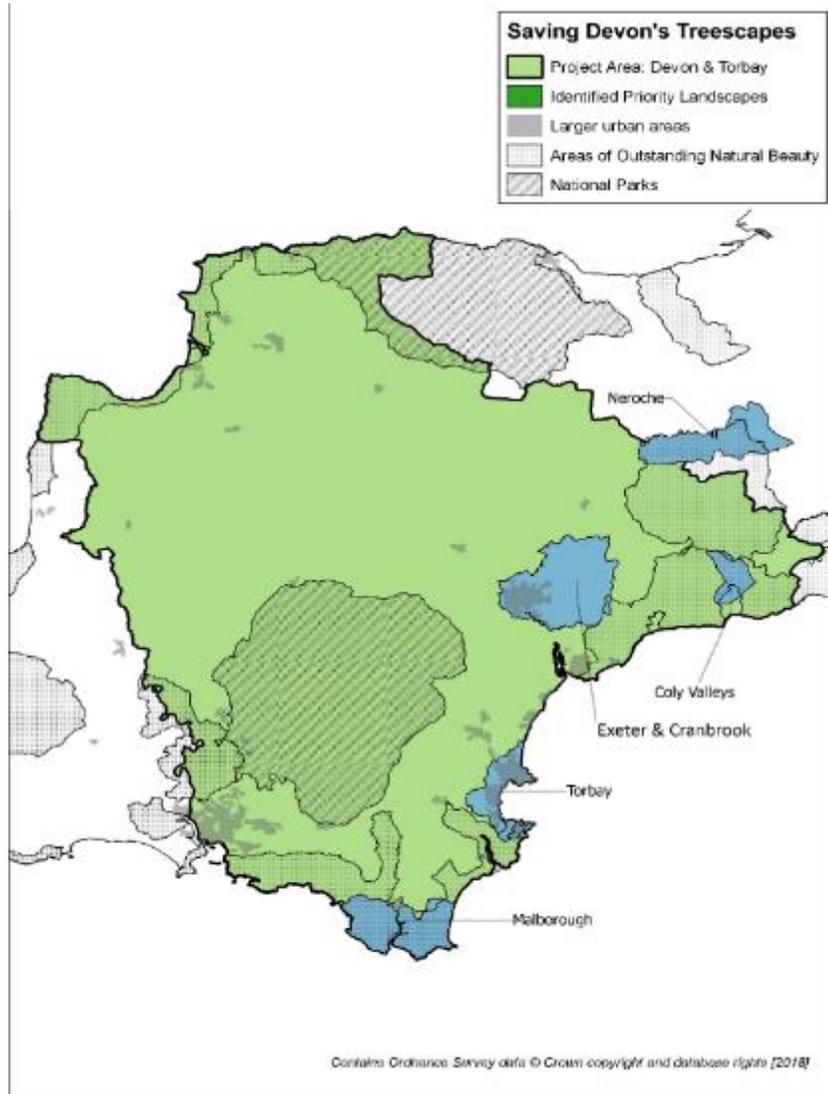


Devon's treescapes are stunning and crucial habitats for so much wildlife. But they are under threat from ash dieback which is estimated to kill at least 90% of Devon's ash trees in the coming years. It will affect everyone, but everyone can be part of the solution. We're leading on fighting ash dieback on behalf of the Devon Ash Dieback Resilience Forum, and we are looking for Devon's communities to get involved and help us to save Devon's precious treescapes.



Saving Devon's Treescapes is led by Devon Wildlife Trust on behalf of the Devon Ash Dieback Resilience Forum and is supported by the National Lottery Heritage Fund, One Tree Planted, as well as other funders. It is a partnership project with the following organisations:





Saving Devon's Treescapes will support local communities throughout Devon to plant and nurture over 250,000 trees. The project will enable people to care for and celebrate our treasured treescapes, supporting local action for wildlife and climate change.

The project will be Devon wide, but 50% of resource will be given to five focus areas which are:

- South Devon
- Torbay
- Exeter and Cranbrook
- The Coly Valleys
- Neroche

Thank you

- A big thank you to the Devon lichenologists who have offered help and guidance for this part of the project, including Bob Hodgson, Maxine Putnam and especially Barbara Benfield.
- Thank you to Plantlife for supplying additional photos – Kate and Dave (Building Resilience Project)



Lichens and Ash

- Lichens were affected by Dutch elm disease, with many species becoming more dependent on other tree species, including ash¹. With ash now in trouble, the impact on lichens could be very damaging on some lichen communities.
- Both elm and ash have alkaline bark, particularly as they age, so larger trees have a higher pH than younger trees.
- The loss of so many ash trees will have an impact on both specialist and generalist species of lichen.

1 The British Lichen Society



What is a lichen?

- A dual organism comprising a fungus (mycobiont) and an alga and/or a cyanobacterium (photobiont).
- The fungus makes up about 95% of the structure
- This combination is self supporting, with the fungus providing the structure and the alga able to photosynthesise.
- About 20% of fungi species are lichenised.
- About 1900 species in the UK, ~900 of which can be found in Devon.
- Lichens grow on many surfaces.

y grow slowly and are visible all year.

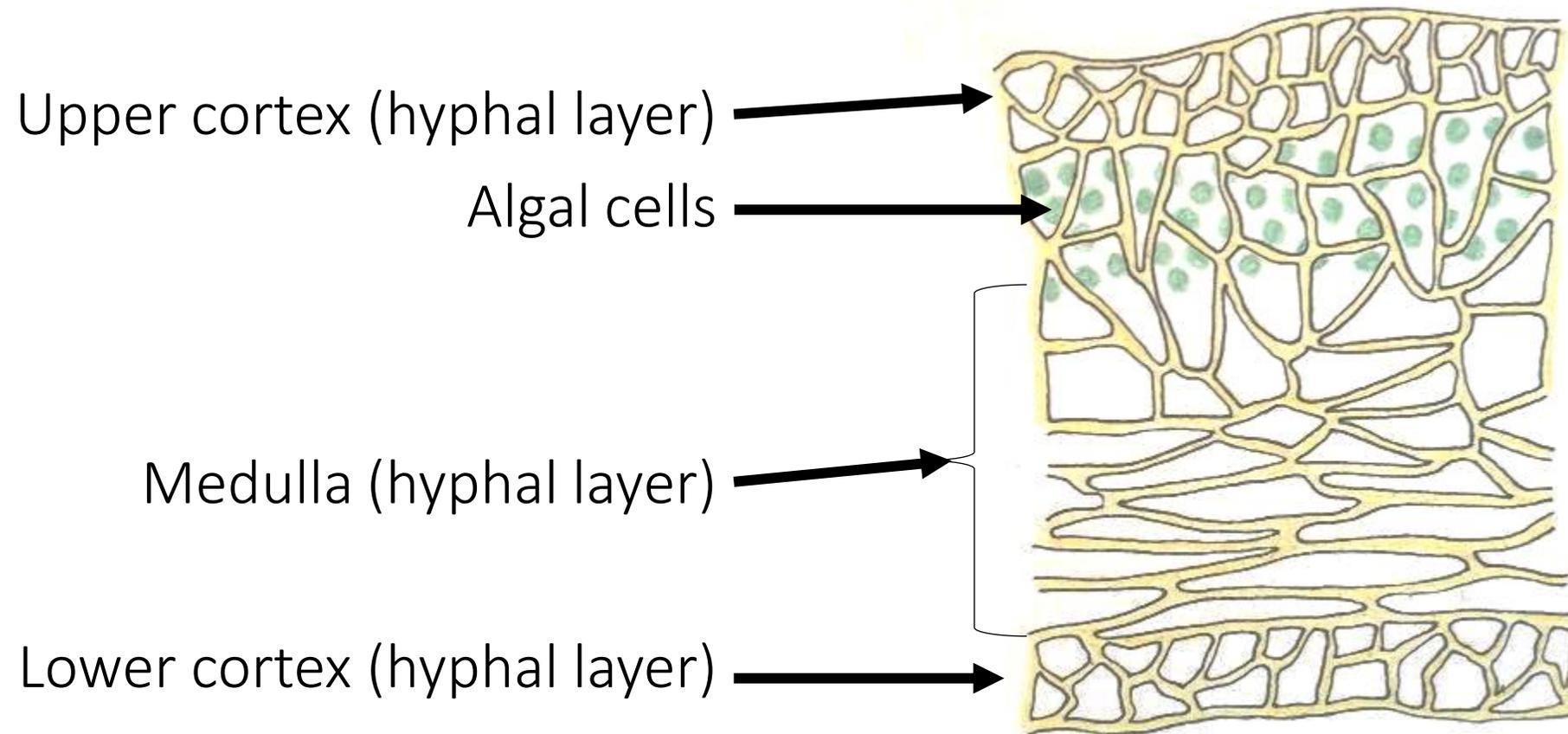


Lichen identification

- With so many species of lichens, it can be very difficult to tell one from another.
- This presentation will give you the basics of what to look for when identifying, as well as a more in-depth look at a few species we will be asking you to survey for and record for the project.
- Some species can't be separated easily by eye (even under magnification) and require chemical tests. We've chosen ones where you won't need chemical tests.



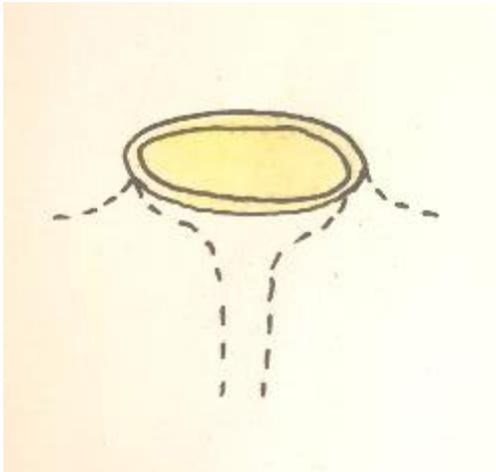
Lichen morphology (structure)



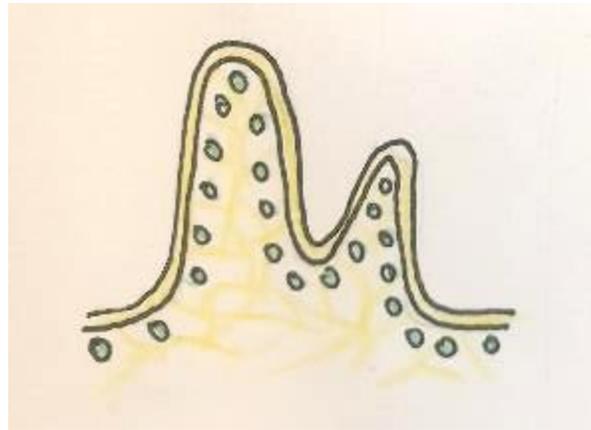
Generic lichen cross-section

Reproduction

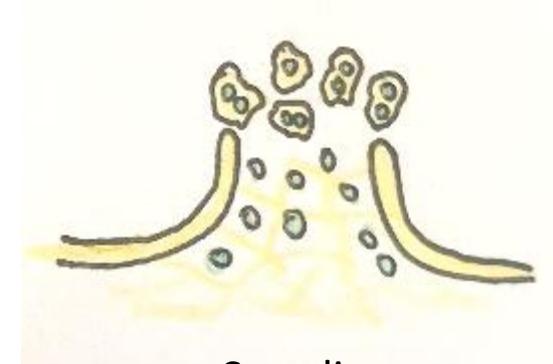
- Fruiting bodies – only the fungal partner is represented. Apothecia.
- Isidia and soredia – contain both fungal and algal ‘propagules’.
- Broken piece of lichen.



Apothecia



Isidia



Soredia

Technical terms

- Thallus – main body of lichen
- Prothallus – edge of the thallus
- Hypha – fungal filament
- Apothecia – a common type of fruiting body
- Isidia – finger-like projections
- Soredia – powdery reproductive packages on the surface of the thallus, produced by soralia
- Rhizine – Hyphal attachment of the lichen to the substrate (eg tree bark)
- Corticolous – growing on bark



Lichen Forms

- Crustose



- Foliose

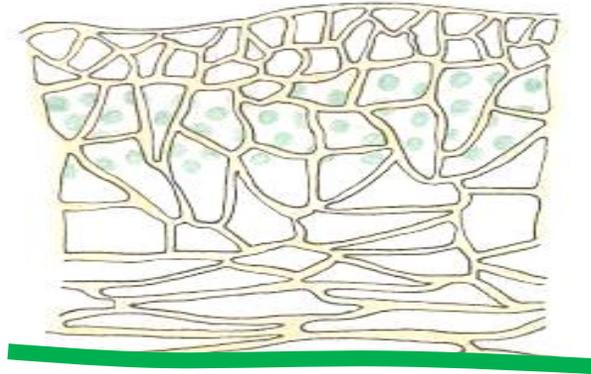


- Fruticose



Crustose Lichens

- Really well attached to the substrate
- Generally very thin.
- Apothecia frequently present



Arthonia cinnabarium

- Thallus light grey-brownish
- Brown prothallus (the edge of the thallus)
- Apothecia up to 0.5mm. White to red powdery, with orange margins becoming dark red-brown when older. Get a few apothecia grouped together.
- Habitat – shaded areas on smooth bark



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Graphis scripta

- Thallus white-grey, smooth or slightly wrinkled.
- Apothecia curved and squiggly network.
- Edges smooth (ther is a similar species, *G. elegans*, where the edges of the apothecia are furrowed)
- Occasionally with a powdery-white coating (need a good lens to see this!)



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Thelotrema lepadinum

- Thallus creamy white-grey
- Covered in warts that look like barnacles, up to 2mm wide.
- Contain the apothecia.
- The holes are round and the thallus colour is quite uniform (other species will differ in these respects).

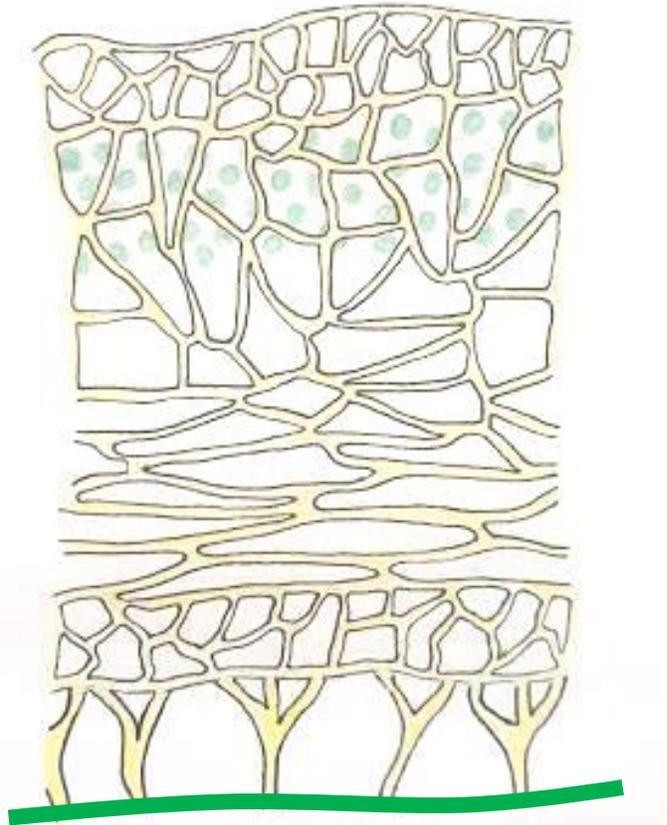
Note: *T. macrosporum* has lighter patches on a grey-green thallus and central opening more like a split.

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Foliose Lichens

- Attached to the substrate with rhizines
- Flat and leaf-like
- Can vary greatly if wet or dry
- Fruiting bodies more rare



Parmelia sulcata

- Thallus greeny-grey with a blue tinge. Brownish tips.
- Lobes up to 5mm wide and ridged.
- Soralia (producing soredia) develop along the ridges, showing a coarse, white network.
- Lower surface black with rhizines.
- Rarely has apothecia



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Lobaria pulmonaria

- Also called “Lungwort”
- Rare, found in really good quality, old woodland habitats.
- Thallus green. Upper surface shiny and wrinkled. Lower surface pale brown. Lobes up to 25 cm long.
- Soredia found along the ridges on the upper surface.
- Apothecia rare.
- Westcountry still a stronghold.
- Used to be collected as a medicine to cure lung disease.

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Xanthoria parietina

- Colour depends on how much sunlight it gets – grey-green in the shade and bright orange in sunny places.
- Lobes up to 7mm wide.
- Edges of the lobes often turned up.
- Lower surface white with pale rhizines.
- Apothecia common and numerous in the centre of the thallus. Orange with a paler margin, almost stalked.
- An indicator of nutrient rich habitat. Really resistant to air pollution (SO₂ and nitrogen).
- Common on roof tops where birds roost.



Sticta sp.

- Often quite large, lobes 2-3cm across.
- Generally brown – greenish brown.
- West country is one of the strongholds
- Often ridged on the upper surface.
- *S. fuglinosa* smells like fish when wet!
- Like damp habitat.

Top photo: *Sticta fuglinosa*

Lower photos *Sticta* sp.

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Collema sp.

- “Gelatinous” lichens
- Foliose but usually very well attached.
- When wet the thallus swells and when dry it is very thin.
- Usually very dark green-brown
- Like damp places.

Collema furfuraceum (top)

Collema subflaccidum (bottom)

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Anaptychia ciliaris

- Looks like a fruticose lichen
- Long (up to 5cm) narrow lobes, widening at the tips to 5mm
- Thallus grey tipped with brown, under a hand lens it has a furry appearance.
- Lower surface is white and doesn't have a lower cortex, so the hyphae form a loose mat.
- Apothecia present in unpolluted areas. Black discs.
- Quite a rare species, best found in the eastern half of the county.

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Evernia prunastri

- “Oakmoss”
- It is a foliose lichen, but looks fruticose
- Flattened thallus
- Pale grey-green with a paler underside, BUT often with green patches
- Top of thallus can become ridged in older specimens
- Common on deciduous trees

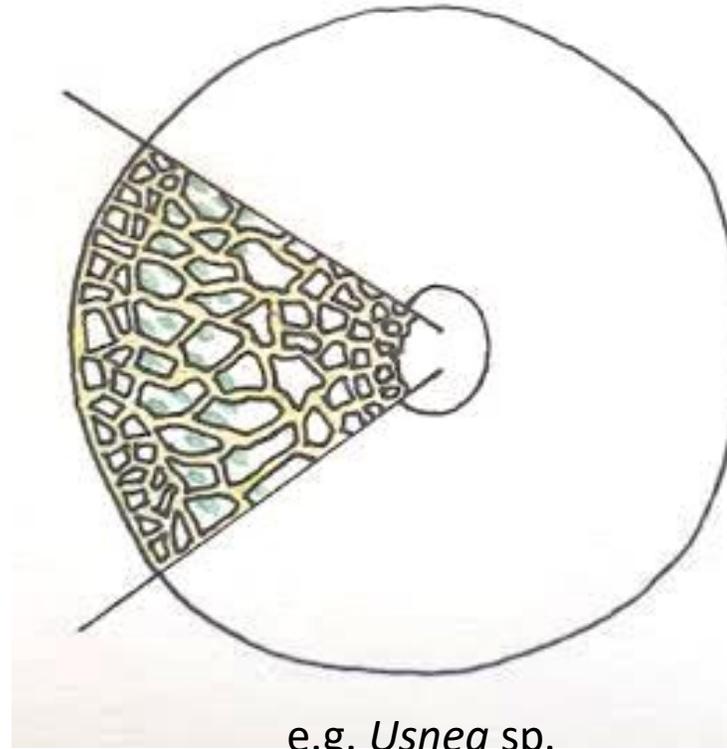
- WARNING!
- Easily confused with *Ramalina farinacea*
- Look for the ridges and a colour difference top/bottom
- *Evernia* is softer than *Ramalina*.

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Fruticose lichens

- Radially symmetrical
- No distinct upper or lower surface
- Cross section can be round (e.g. *Usnea*) or flattened (e.g. *Ramalina*)
- Attached by one point



e.g. *Usnea* sp.



Ramalina farinacea

- Thallus pale grey-green and flattened
- Narrow (up to 3mm wide)
- Often slightly curved
- “farinose soredia” (floury spores) on oval soralia.
- Apothecia rare
- Similar to *E. prunastri*
- Look for the curve, marginal soredia and uniform colour.



Usnea articulata

- Grey-green thallus, round in cross-section.
- Can be up to 1m in length
- Main branches have the appearance of a string of sausages
- Very sensitive to SO₂ pollution, so only found in areas with very clean air.

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Recording Lichens

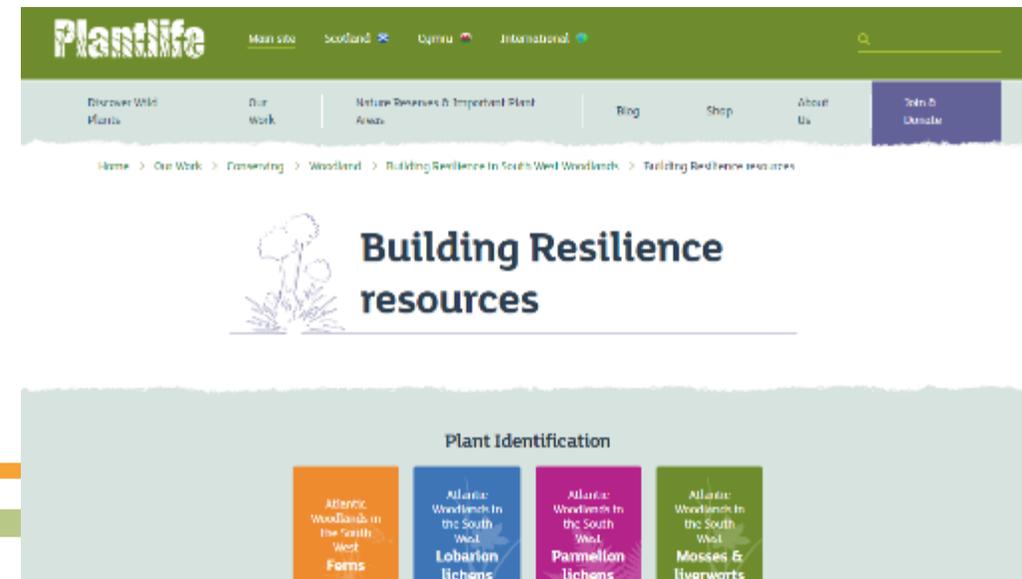
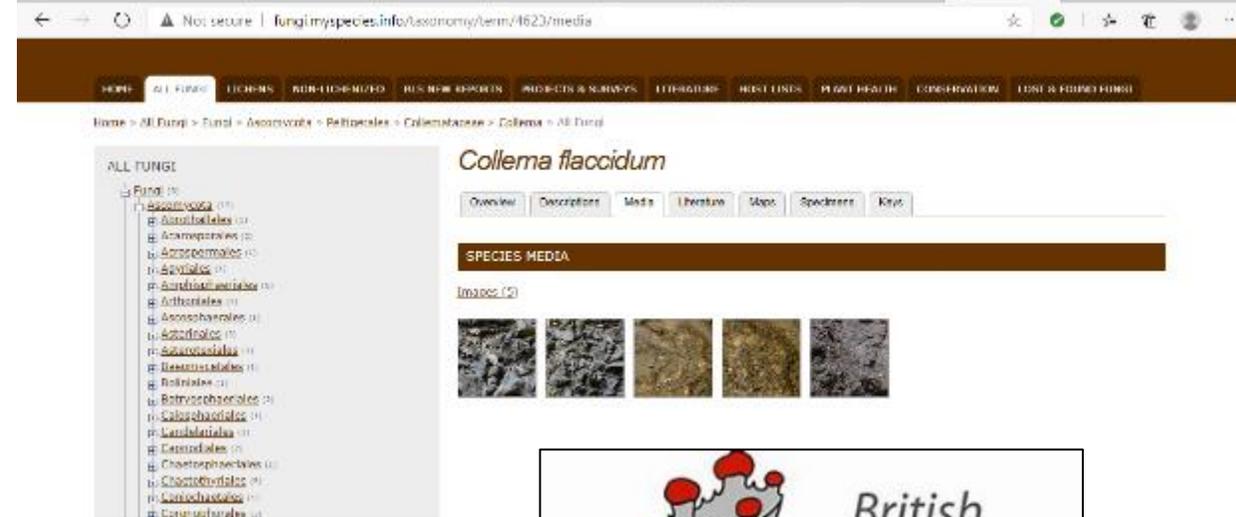
- You can record for the project via the web-based app, or with the recording form we will send out following this talk.
- The app can be found at: <https://devontreescapes.com/home>
- Word survey forms are also available via the website



The screenshot shows the homepage of the 'Saving Devon's Treescape' citizen science project. At the top, there is a navigation bar with links for 'Home', 'Treescapes App', 'Devon Heartstream App', and 'User Info'. Below the navigation bar is a large orange banner with the text 'Welcome to the Saving Devon's Treescape citizen science project'. The main content area features a background image of a large tree in a field of purple flowers. There are two green text boxes: 'Treescapes Data Capture' and 'Treescapes Instructions for use'. The 'Data Capture' box explains how to record data and includes a warning about legal access to land. The 'Instructions for use' box provides a step-by-step guide for recording a tree, including zooming the map, selecting a tree, and adding location details.

Help and References

- [British Lichen Society](#)
- [Fungi of Great Britain and Ireland](#)
- Lichens – An Illustrated Guide to the British and Irish Species by Frank S. Dobson
- FSC charts – Lichens on twigs
- Plantlife - [Building Resilience Project](#)



Thank you!

Thank you for taking part

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