

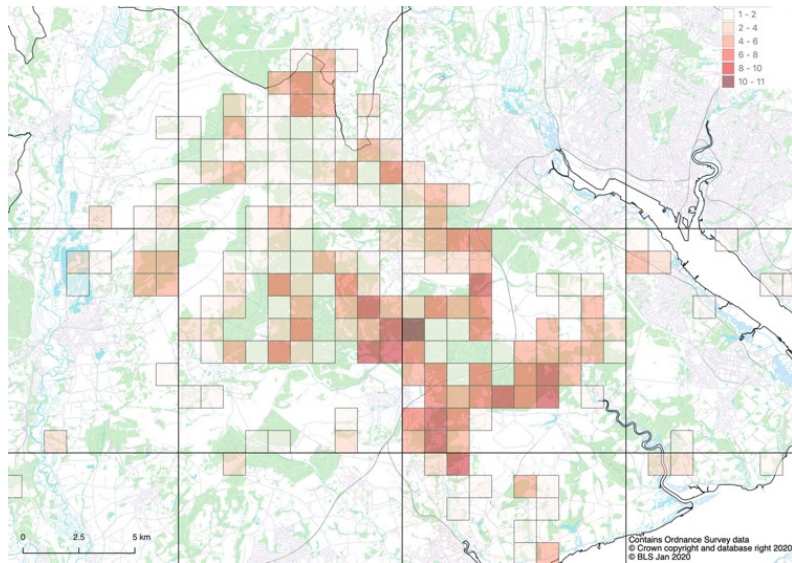
Recent Lichen Survey in the New Forest



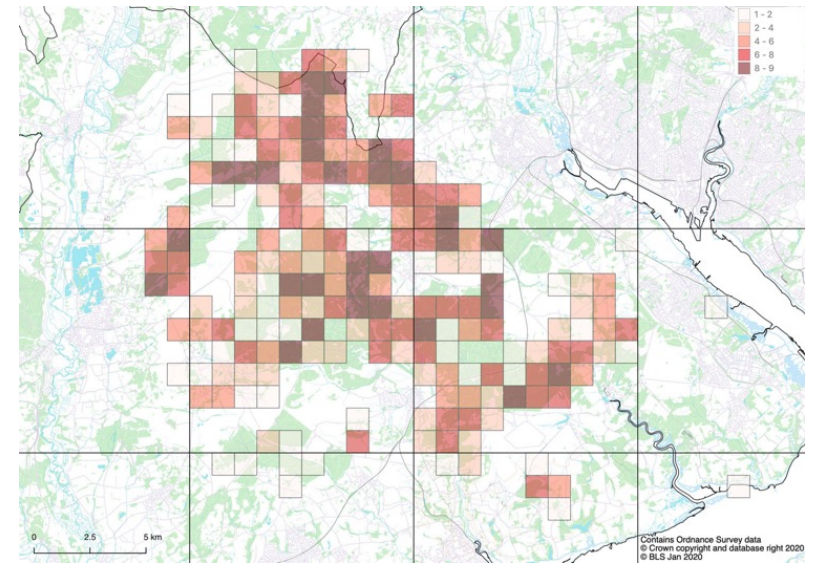
Tree Lungwort *Lobaria pulmonaria* colonising Sallow in 2023, absent 2011

Lichen Survey in the New Forest

Since 2008, there has been ongoing general survey, including a COVID project to map the species of interest at 1km across the open Forest. This has been contributed to by funded studies and surveys.



Density of ancient Oak specialist lichens



Widespread Old Growth Species

Lichen Survey in the New Forest: Species Totals

- New species are constantly being found
- Since 2008 the total of 477 lichen and associated fungi taxa recorded from the SAC has been increased to 720 taxa (33% increase)
- 28 Red List species
- 44 Near Threatened species
- 124 Notable species



Porina collina new to lowland England 2023

Lichen Survey in the New Forest: Research & Reports

The data collected has been used in several research projects producing nine peer reviewed papers and four survey reports

- Wolseley et al (2016) emphasised the oceanic southern temperate nature of the epiphytic assemblages & importance of Oak
- Hofmeister et al (2022) was based on intensive recording of 1ha plots and recorded 184 lichens from an old growth Beech stand
- Provided statistical back up for Francis Rose's expert assessment of the outstanding richness of the New Forest epiphytic lichen assemblage.

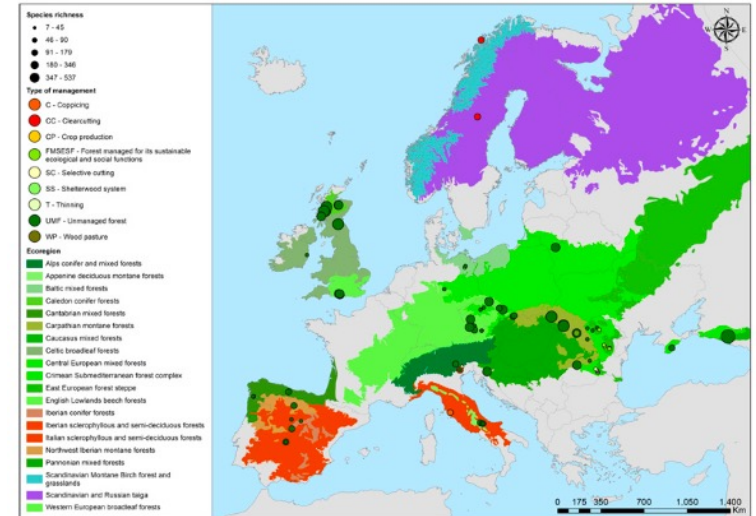


Figure 3 Epiphytic lichen species distribution based on forest management across Europe's ecoregions. The large grey areas belong to other ecoregions not included in this study.

Vicol et al (2023) a review paper using data from Hofmeister et al (2022)

Lichen Survey in the New Forest: Heathland

The outstanding work of the last 15 years however was the detailed exploration of the New Forest heathlands

- These were known to be important and rich but the scale of the habitat and the taxonomic difficulty of *Cladonia* had discouraged detailed study
- A sample survey was started in 2011 and a detailed report published in 2017, but with survey continuing



Pycnothelia papillaria

Lichen Survey in the New Forest: Heathland Species

This found many new species, some very unexpected. Examples:

- Southern Atlantic species *Cladonia mediterranea* and *Cladonia firma*



Cladonia firma



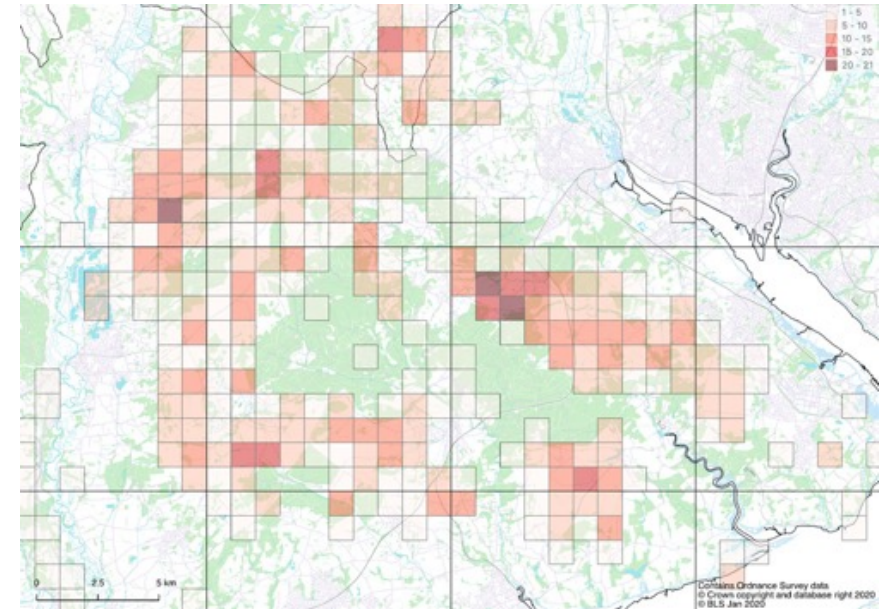
Cladonia zopfii

- Northern *Cladonia subcervicornis* and *Cladonia zopfii*

Lichen Survey in the New Forest: Diversity

100 1km squares were systematically surveyed for the main 2011 – 15 survey

- An average a Heathland Moorland and Coastal Heathland Index (HMCHI) score of 22 (10 – 38). SAC scored 59
- 20+ indicating national interest in HMCHI
- This national scoring system was pioneered in the New Forest



Diversity of heathland specialist lichens

Lichen Survey in the New Forest: Ecology

The overarching factor in lichen abundance is the presence of infertile soils

High diversity is only expressed where openness is maintained by management pressures. Main factors:

- Grazing
- Prescribed burning
- Disturbance



Burned & grazed lichen rich wet heath

Lichen Survey in the New Forest: Ecology

Lichen rich areas are produced by complex interactions between grazing, prescribed burning and disturbance

- The richest areas are highly dependant on these disturbance factors
- The disturbance level is typically higher than is encountered in conservation managed heathland outside of the New Forest
- Heathlands beyond the Forest currently have much lower lichen diversity



Burned & moderately grazed lichen rich humid heath with *Cladonia zopfii*

Lichen Survey in the New Forest: Grazing

Grazing pressure varies widely across the open Forest, a fundamental factor in promoting biodiversity

- Lightly grazed: low lichen diversity, some when burned, pioneer into building stage
- Moderately grazed: high diversity after burning, maintained well into mature stage
- Hard grazed: prostrate heather, rich in larger burning sensitive lichens, diversity of smaller fire dependant lichens is low



Cladonia zopfii & cow pat

Lichen Survey in the New Forest: Prescribed Burning

Cool fires produce surfaces with open hard black humus. Lichen propagules (and some whole lichens) survive and regenerate.

- DIFFERENT FROM HOT WILD FIRES, these sterilise the soil, colonisation takes much longer
- Cutting leaves thick layer of loss brown fibrous humus, propagules almost completely suppressed



Cladonia subcervicornis & *Cladonia strepsilis*
regenerating after prescribed fire

Lichen Survey in the New Forest: Disturbance

Disturbance an important part of ecological-cultural history of the heathlands

- In biodiversity terms disturbance is creative as well as destructive
- Needs slow vegetation recolonisation, with grazing often maintaining the openness long after the disturbance has ceased

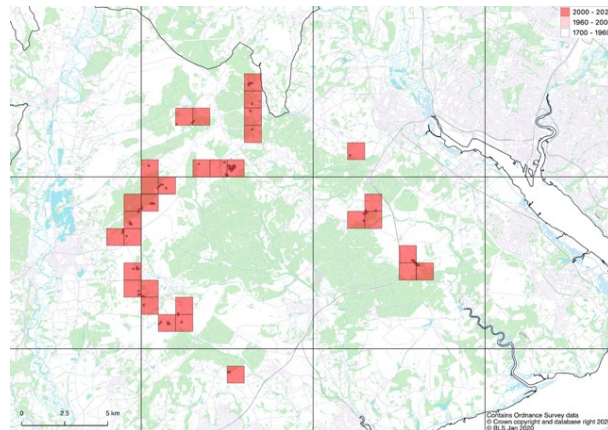


Burned & grazed lichen rich wet heath

Lichen Survey in the New Forest: Surprises, *Cladonia peziziformis*

11 years into the intensive survey of the heaths, new species were still being found

- *Cladonia peziziformis* is an attractive small lichen of open patches in short grazed and/or burned more productive soils
- The Forest is now has the largest known European population



Cladonia peziziformis on hummock in burned and grazed herb rich wet heath

Lichen Survey in the New Forest: Heathland Conservation

Maintaining the outstanding heathland lichen assemblage of the New Forest requires:

- Variable grazing pressures, both in time and place, which are locally high
- Widespread systematic prescribed burning
- A not over precious attitude to disturbance



Hard grazed lichen rich heath with hollow ways