

Collema fragrans (Sm.) Ach.
(1816)



PLANTLIFE

Clustered Mini-jelly Lichen

COLLEMATACEAE

SYN.: *Collema terrulentum* Nyl.

Leptogium fragrans (Sm.) Leight.

Leptogium microphyllum Leight.

Status

Red Data Book – Vulnerable
(Church *et al*, 1996)

Nationally Scarce

Red Data Book – Endangered
(Woods & Coppins, 2003)

International Responsibility (Woods & Coppins, 2003)

Work on *Collema fragrans* is supported by:



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1 Morphology, Identification, Taxonomy & Genetics

1.1 MORPHOLOGY & IDENTIFICATION

Collema fragrans is a member of the *Collemataceae*, or jelly-lichens, which have a blue-green alga as their photobiont and differ from most other lichens in that the algal cells are spread throughout the thallus rather than in a layer just below the upper cortex. Owing to the nature of the algae, many jelly-lichens swell on wetting by rain and take on a very different appearance to their dry state.

C. fragrans is a small shrubby lichen with the thallus forming small rosettes to 5 cm in diameter, but it often forms extensive crowded colonies along sap runs and wound tracks. The thallus is formed of flattened or extending to erect lobes, 0.3 – 1.5 mm wide, with the upper surface bearing numerous, small globose or flattened, lobe-like structures and is not swollen when wet. Apothecia are usually present and often crowded in the centre of the thallus, with a brown disc and a thick thalline exiple.

C. fragrans is most easily confused with another jelly-lichen, *Leptogium subtile*, which may grow in similar habitats, but *Leptogium* species differ in the thallus having a one-celled upper and lower cortex.



Figure 1 - *Collema fragrans*, Herbarium specimen, Natural History Museum, London.

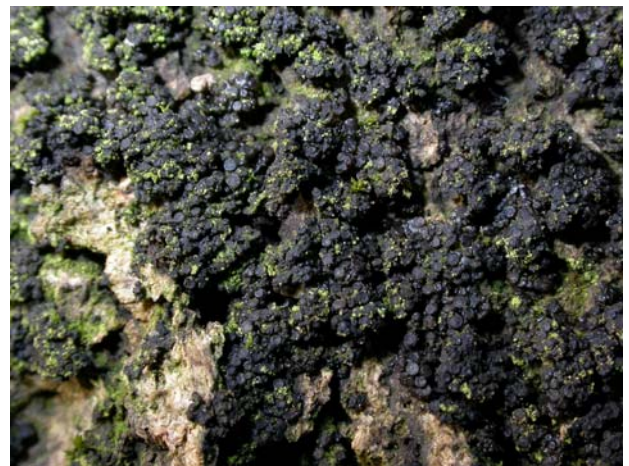


Figure 2 - *Collema fragrans*, on wounded beech tree, New Forest, 2005

2 Distribution & Current Status

2.1 WORLD

Europe, Morocco and North America (Purvis et al., 1992).

2.2 EUROPE

There is little recent information of the distribution of this species in Europe, but it has been recorded from western, central and southern countries, although there are very few recent records from Belgium, northern France or Luxembourg (Sérusiaux, 2004). In Italy it is described as 'apparently not uncommon' (Nimis, 1993).

2.3 UNITED KINGDOM

2.3.1 ENGLAND

C. fragrans has a mainly southern distribution in Britain with most records south-east of a line from the Wash to the Severn Estuary, apart from historical records from Cumbria and Yorkshire. The records are fairly widely scattered with a notable concentration of records in south Hampshire (New Forest).

There are records from 21 vice-counties in England but there are records from only 9 vice-counties since 1960, indicating a significant decline before the onset of the main epidemic of DED. From 1960 to 1990 the species declined further owing to the loss of the elms by DED. Since 1990 there are records from only 4 vice-counties (see Table 1), with the majority from the New Forest.

2.3.2 WALES

There are records from five vice-counties in Wales (Woods & Orange, 1999), but the most recent records from Radnor (Woods, 1993) and Brecknock (Woods, 2003) were both from elm trees, and the species may now be extinct in Wales.

2.3.3 SCOTLAND

C. fragrans has always been very rare in Scotland and there are records from three vice-counties and only one since 1960. The two post-1960 records from the Strontian area were both from elm trees and therefore the species may be extinct in Scotland.

Table 1 - Summary of post-1990 records of *Collema fragrans*.

V-C No.	VICE COUNTY	SITE	10 KM	PHOROPHYTE	NO. OF TREES
3	S. Devon	Whiddon Deer Park	SX78	<i>Fraxinus excelsior</i>	1
4	N. Devon	Chulmleigh	SX71	<i>Fraxinus excelsior</i>	1
9	Dorset	Great Wood	SY88	<i>Acer campestre</i>	1 (tree fallen 2002)
9	Dorset	Handcock's Bottom	ST81	<i>Fraxinus excelsior</i>	1
11	S. Hants	Brinken Wood	SU20	<i>Fagus sylvatica</i>	1?
11	S. Hants	Emery Down	SU20	<i>Fagus sylvatica</i>	1?
11	S. Hants	Drivers Nursery	SU20	<i>Fraxinus excelsior</i>	1
11	S. Hants	Mark Ash Wood	SU20	<i>Fagus sylvatica</i>	2
11	S. Hants	Rockram Wood	SU21	<i>Fagus sylvatica</i>	1
11	S. Hants	Shave Wood	SU21	<i>Fagus sylvatica</i>	1
11	S. Hants	Denny Wood	SU30	<i>Fagus sylvatica</i>	1
11	S. Hants	Buskett's Wood	SU31	<i>Fagus sylvatica</i>	1
7	N. Wilts	Savernake Forest	SU26	<i>Quercus robur</i>	1
					14+

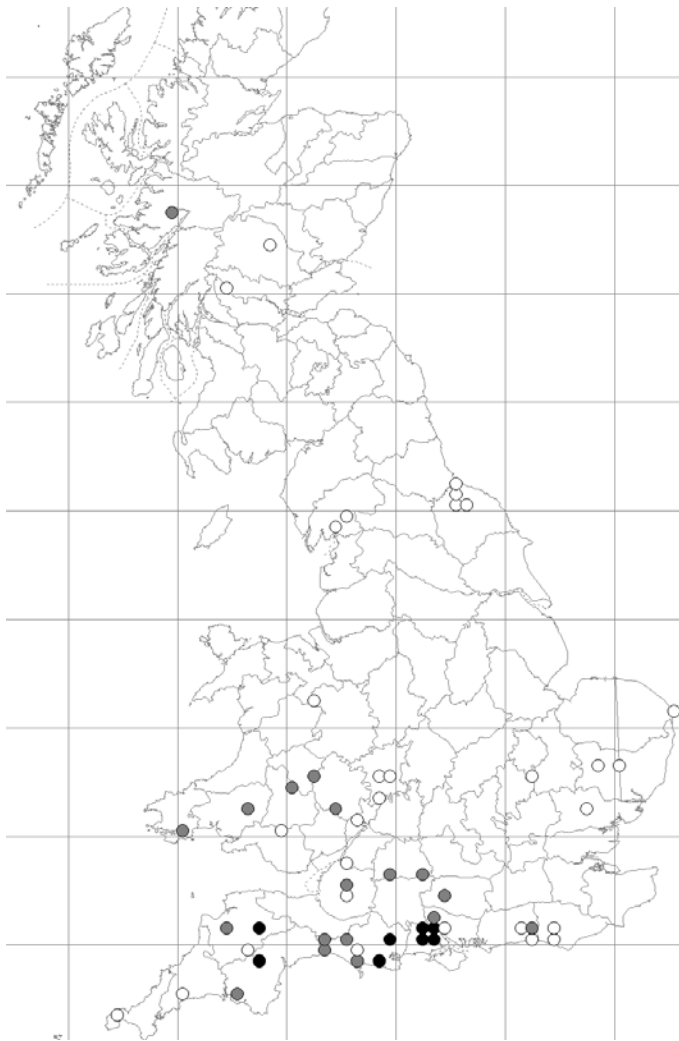


Figure 3 - Distribution of *Collema fragrans* in Britain

(Black = post-1990; Grey = 1960-1989; White = <1960)

Figure 4 - Post-1990 – 8 10km squares



3 Ecology & Life Cycle

C. fragrans is a species of old basic-barked trees and has been found in two main habitats. It was formerly found on the rough, basic bark of well-lit old elm trees in parkland and wayside situations where it was sometimes found with other 'elm specialists' such as *Bacidia incompta* and *Caloplaca luteoalba*. Its other main habitat is by sap runs on old beech trees in the ancient old-growth woodlands in the New Forest.

4 Habitat requirements

The limited amount of information gained from herbarium specimens and available literature suggest that *Collema fragrans* requires the following conditions:

- Low atmospheric pollution
- Continuity of old trees with a naturally high bark pH
- The presence of hollow or wounded trees

4.1 THE LANDSCAPE PERSPECTIVE

LOW ATMOSPHERIC POLLUTION

The distribution map of this species shows that this species was mainly found in areas with relatively low atmospheric pollution.

4.2 COMMUNITIES & VEGETATION

A CONTINUITY OF OLD BASIC-BARKED TREES

Although strongly associated with elm, this species has also been recorded from ash, beech and field maple. Ash and field maple naturally have a basic bark, and beech can have basic bark in certain circumstances. Most of the trees on which the trees are found are old and many are probably veterans.

THE PRESENCE OF WOUNDED TREES

On elm and beech especially, this species shows a preference for growing on trees that have been wounded either artificially by pollarding or cutting branches, or where branches have broken off creating sap runs. Wounded beeches in the New Forest are now the main habitat of this species in Britain.



Figure 5 - Old beech tree supporting *Collema fragrans* in a streak by the sap run, Buskett's Wood, New Forest.



Figure 6 - Old beech tree supporting abundant colony of *Collema fragrans* for 2 m up the trunk, Mark Ash Wood, New Forest.

5 Threats / Factors Leading to Loss or Decline or Limiting Recovery

This species is clearly under immediate threat and in the long term is likely to survive only in the New Forest where there are sufficient old wounded trees to support a viable population.

6 Future monitoring

A survey of the species is desirable in the New Forest to give an overview of its distribution in the beech-dominated woodlands. Surveys could be linked to other BAP species with similar requirements such as *Bacidia incompta* and the moss *Zygodon forsteri*, plus another 'elm specialist', *Cryptolechia carneolutea*, which also occurs in the Forest.

In the other remaining sites, surveys of the species are urgently needed to assess the current status of the populations. Both the Devon and Dorset sites are Sites of Special Scientific Interest notified partly for their rich lichen floras.

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9 Contacts

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10 Links

- British Lichen Society: <http://www.thebls.org.uk/>.

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