Golden hair lichen

(Substantial revision of SAP in 2004)

1. A Definition

The golden hair lichen (*Teloschistes flavicans*) is a rare and strikingly-coloured species, and, like all lichens, is a biologically unique combination of a fungus and an alga.

It is one of the most pollution-sensitive species of all lichens, and the clean air of Devon is certainly one factor that allows it to occur here in greater numbers than almost any other county in Britain (second only to Cornwall). Indeed, this scarce lichen is now confined to southwest England, west Pembrokeshire and NW Wales.

In inland areas of Devon the golden hair lichen grows only on trees, favouring ash and sycamore, but on the coast, where it can be locally abundant, is also to be found on rocks and on the ground, but always in airy, well-lit situations. Until recently, the species grew on trees on Dartmoor, but is now probably extinct there.

2. Why an Action Plan?

Formerly, the golden hair lichen was to be found from central England to the south coast from Kent to Cornwall, and this decline may well be a result of increases in air pollution. It appears to be tolerant of a narrow range of atmospheric conditions.

The species appears to have rather poor powers of colonisation; even apparently suitable trees adjacent to healthy populations may remain un-colonised, and this may be an important factor explaining the rarity of this lichen, combined with the possible effects of air pollution.

As one of the few counties left where golden hair lichen still exists, Devon has a special responsibility to ensure that the golden hair lichen continues to be part of our rich flora.

Establishing the reasons for the species scarcity must be a first priority before meaningful steps can be taken to enhance current populations or re-introduce the species to areas where it has recently become locally extinct.

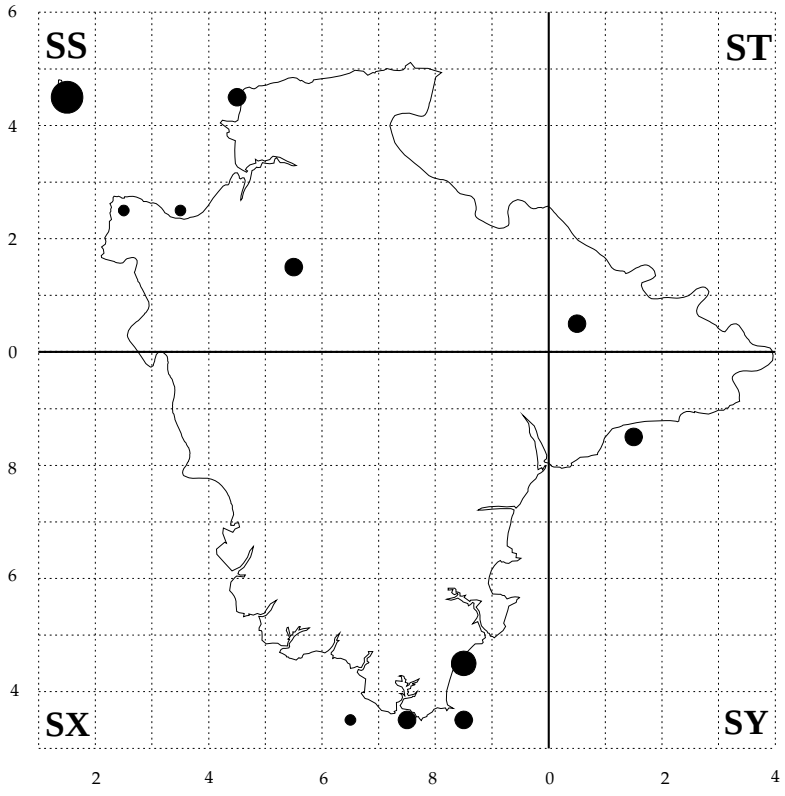
3. Relevant ecology

The golden hair lichen grows only in airy, well lit situations, especially on or near the coast, but also inland.

In coastal locations it grows among wind-stunted heather plants on thee crest of slopes that are exposed to moist air currents from the sea. It is also found among other lichens in short cliff-top turf and low rocky outcrops. Although the species tolerates salt, it is not a salt-lover and occurs well up the shore away from frequent exposure to salt spray.

Inland populations are now solely found on well lit trees (and occasionally on trees within hedgerows). There is a marked preference for ash and sycamore, but may also be found on oak, blackthorn, alder, rhododendron and elm. The typical host tree is large, free-standing and exposed to the wind. Most sites are by dusty roads or unmade tracks (and it has been suggested that the mild eutrophication which this provides encourages the lichen).

4. Distribution of golden hair lichen in Devon



Golden Hair Lichen presence in 10 Km squares

1-10 11-100 1000 30,000

(Data supplied by the British Lichen Society)
N.B. new sites have been found at (a) North Wyke in 2002 and (b) Slapton in 2004.

5. Current population

The golden hair lichen is an Atlantic-Mediterranean species in Europe, and Britain represents its northernmost limit. In the British Isles the golden hair lichen is now confined to the south west, with populations in Pembrokeshire, Caernarvonshire, Dorset, Cornwall (including the Isles of Scilly) and Devon.

Gilbert and Purvis (1996) established that there were five areas that contained several populations of the species. These "core" areas are Land's End, the Lizard, the Start Point/Bolt Head area of south Devon, the island of Lundy (by far the largest population in the British Isles), and Skomer/Skokholm. Recently, three additional major core populations have been discovered growing on trees in Cornwall.

The table below shows the estimated population size in 'core' sites in Devon:

Site	**Population size** (no. of thalli)	**Habitat**
Lundy	30,000	rocks/on ground
Stokenham	1000	trees
Prawle Point	100	rocks/on ground
Start Point	50	rocks/on ground

In addition to these core sites, there are about 10 other sites which contain small numbers of thalli (see map).

6. Current problems for golden hair lichen in Devon

Acid pollution is likely to adversely affect the survival of the species. Lundy and the north coast of Devon may be particularly vulnerable from emissions emanating from industrial south Wales, and the golden hair lichen is particularly sensitive to pollution of this kind (though the reduction of heavy industry in south Wales has reduced this threat).

Loss of trees through storm damage or felling.

Ivy is the greatest present threat to *T. flavicans* on trees.

Agricultural pollution from high concentrations of animals and from slurry-spreading may splatter the trunks of trees on which the lichen grows. The species will not tolerate high concentrations of organic material. Other stray agricultural chemicals such as herbicides and fungicides may be harmful to this lichen.

Coastal fires may pose a threat where the species grows on moribund plants of heather.

Over-grazing on coastal sites by stock (but note that grazing is often necessary to prevent shading out by higher plants and sheep are beneficial in small numbers. Rabbits are ideal).

Cattle rubbing against trees on which the lichen grows can destroy the lower-growing thalli.

7. Recent changes in population

The golden hair lichen has undergone a substantial contraction in its range over the last century.

Formerly the species extended from Yorkshire, Lancashire and Leicestershire towards the London area and along the south coast from Kent to Cornwall. Gilbert and Purvis (1996) suggest that in Dorset the species has in the last 25 years become scarcer and individual thalli smaller, a warning that the current range may still be contracting.

In Devon, the lichen has disappeared from five sites over the last 20 years (12 sites over the last 50 years). At the important Stokenham site trees have been lost since 1990, and the species is probably extinct on Dartmoor.

The likelihood of more local extinctions is high, since at many sites in Devon the species is present on just a single tree or rock. While more research and monitoring needs to be established, currently this species is vulnerable to man-induced changes in its environment.

8. Current protection

Protected under Schedule 8 of the Wildlife and Countryside Act 1981.

SSSIs at which the golden hair lichen occurs in Devon include Lundy, Stokenham, Bolt Head to Bolt Tail, Prawle Point to Start Point, Morte Point, Marsland to Clovelly, and Sidmouth to Beer Coast. The species has recently been lost from the SSSIs of Buckland-in-the-Moor and Bovey Valley Woodlands.

Listed as globally threatened on the UK Biodiversity Steering Group Report (1995).

Listed as vulnerable on the IUCN Red List.

Classified as either regionally extinct or else endangered on the European Community Red List of Macro-lichens.

9. Current positive initiatives for golden hair lichen

in Devon

The paper by Gilbert and Purvis (1996) gives an excellent account of the species' distribution, ecology and conservation.

The golden hair lichen is part of English Nature's Species Recovery Programme. Between 1997 and 2002, experimental transplanting was carried out at five sites in Devon and Dorset and Oliver Gilbert monitored the health of the transplants for five years. The results were moderately successful, with 6 out of more than 36 transplants showing new growth in 2002. Reasons given for the successful translocations and spread of new colonies were careful placing of the translocations into the preferred lichen community (*Parmelietum revolutae*) present on the tree. Reasons for failures were thought to be (i) mostly due to grazing by slugs and snails; (ii) restriction in choice of receptor trees to those without the preferred lichen community present; (iii) and in one instance, change of land-use adjacent to the experimental site was thought responsible (ploughing and sowing of an arable crop on the former permanent pasture beside the line of sycamores used for transplanting).

Tree Preservation Orders contribute to the maintenance of certain substrates for the golden hair lichen.

English Nature monitors the population at Stokenham SSSI every five years, and conducted surveys in 1990, 1995 and 2000. The owner has planted new sycamores with funding from Countryside Stewardship Scheme and whilst the colonies on some trees have been lost, new colonies have been found on other sycamores nearby.

10. Biodiversity planning context

The Devon Biodiversity Action Plan forms a key link in the chain of biodiversity planning running from the National UK Plan, through regional guidance, to local delivery.

National Plan Context

Species of principal importance in England (NERC Act, S.41):

- Golden hair lichen

Current national BAP targets can be viewed on the Biodiversity Action Reporting System (BARS).

Local Plan Context

Action for Wildlife, The Dartmoor Biodiversity Action Plan, has a Species Action Plan for mosses and lichens, including golden hair lichen.

Associated Action Plans within the Devon BAP:

- Sea cliff and slope
- Parkland and wood pasture
- Species-rich hedges

11. Biodiversity objectives and targets for golden hair lichen in Devon

Objective 1

Assess the reasons for the decline of golden hair lichen, including air pollution.

Target:

- Set up rigorous and repeatable monitoring of golden hair lichen and air pollutants at one site by 2007.

Objective 2

Maintain populations at all current sites.

Target:

- Ongoing.

Objective 3

Expand the current population and range of the golden hair lichen in Devon.

Target:

- Restore the species to three former sites by 2007.

12. Wider benefits from pursuing these objectives

The pursuit of the objectives and targets set out above will not only benefit the golden hair lichen. Conservation has wider benefits and advantages for society, by providing a resource that is the basis of many aspects of the local economy, and by adding to the quality of life of the people of Devon in ways that are beyond financial measure. Thus enhancing the interests of biodiversity will also enhance the interests of society as a whole. Some of these wider benefits are as follows:

- The golden hair lichen is a highly pollution sensitive species, therefore its conservation and enhancement will necessitate a healthy human environment as well.

- Raising awareness and understanding of the golden hair lichen among landowners and managers and the general public will have benefits for raising the profile of all lichens and "lower" plants and that of their habitat and air quality requirements. This may lead to, among other benefits, an increased value placed on the provision of amenity trees within landscapes.

13. Priority or indicative actions for golden hair lichen in Devon

Action	Key Partners
1. Ensure appropriate management is carried out on sites that support golden hair lichen, including control of such activities as slurry spreading, coastal burning & grazing (maintaining appropriate levels of grazing at coastal sites), and the prevention of shading by nearby vegetation or ivy. Maintenance of existing trees and new planting are also relevant.	EN; LT; NT; CCMS; Site owners
2. Advise owners/managers of each site that holds golden hair lichen on ways that the species may be maintained or enhanced.	EN; CCMS; Site owners
3. Raise awareness of the distribution, management requirements and identification or golden hair lichen amongst conservation and advisory agencies as well as landowners and the public to enable recognition, appropriate conservation and recording (records to BLS and DRBC). N.B. collection of specimens must be avoided.	BLS; BSBI; FWAG; EN; DWT; DBRC
4. Monitor existing populations. Survey sites where golden hair lichen has been lost and sites that have a good chance of being host to the species.	BLS; EN
5. Examine the options for re-introducing the species to sites from which it has been lost.	BLS; EN; NT
6. Continue to monitor progress of transplant experiments at Uggaton Farm (nr. Honiton), Dunscombe (nr. Sidmouth) and Stokenham (nr. Slapton).	BLS; EN

Golden Hair Lichen Action Plan Champion – Natural England

Abbreviations used in text and table

BAP	Biodiversity Action Plan
BLS	British Lichen Society
BSBI	Botanical Society of the British Isles
CCMS	Coast and Countryside Management Services of Local Authorities
DBRC	Devon Biodiversity Records Centre
DWT	Devon Wildlife Trust
EN	English Nature
FWAG	Farming and Wildlife Advisory Group
IUCN	International Union for Nature Conservation
LT	Landmark Trust
DNPA	Dartmoor National Park Authority
NT	National Trust
SSSI	Site of Special Scientific Interest