



# Introducing

**Petra Vergunst - field archaeologist  
specialised in lichens and  
bryophytes**



I am a freelance field ecologist specialised in lichens and bryophytes. Through my website and similarly named Facebook group Scottish Lichens I offers lichen themed distance learning courses alongside a range of training events, talks and guided walks. I have done extensive lichen surveys of hillforts, recumbent stone circles, drystone dykes and churchyards, particularly in North-East Scotland where I live.

**Where did your interest first start to form with lichens and bryophytes - was there anyone who was a particular influence or were you always a natural environment person from an early age for example?**

I would watch birds in the garden and look for wildflowers with my mother on holidays. As a teenager this became more serious as I became involved in practical conservation work. I then went on to study Forestry at Wageningen University in The Netherlands, a course that had a strong emphasis on both the ecology of nature conservation and botany.

The most interesting aspect of my studies was that I did do a brief course on lichens, but it never stuck with me at the time as the focus was on identification with help of chemical tests and microscopic examination. It wasn't until years later that I noticed during a winter walk how trees were covered in lichens and I thought that I'd like to learn more.

Nowadays, I am glad for my initial experience of lichenology as it shaped who I am as a lichen specialist now. Field identification is key in my work, as is a proper understanding of the physiology and ecology of lichens. When I look at lichens that grow on archaeological monuments I thus not only look at which species are present, I also look at the characteristics of the rock and the structure of the monument to assess the lichen communities found and the way species interact with the properties of the rock and the wider environment.

**Looking outside of pure ecology with an archaeological and landscape focus. Can you estimate the minimum age of a tree or a stone monolith for example from the lichen on it?**

Within lichenology there is a line of thinking that suggests that you can age a rock on basis of the size of particular crustose lichens growing on them. Crustose lichens grow about 1 mm a year, which means that a coin sized lichen could well be ten or more years old.

Using the diameter or the largest crusts of the yellow map lichen *Rhizocarpon geographicum* one can thus calculate when the specimen established itself and the assumption is that this happened soon after the rock became exposed and available for colonisation. This so-called lichenometry has been used to estimate the retreat of glaciers, and it has also been used to gauge the age of gravestones. The same principles could be applied to lichens on archaeological monuments. That said, I treat this theory with caution.

I did a big survey of recumbent stone circles in Aberdeenshire for Forestry and Land Scotland last year, and few of the crustose lichens I found were exceptionally large. Lichens too have a lifecycle and I found crusts of different sizes growing alongside each other and mature crusts that were dying back and/or peeling off, thus creating spaces for colonisation of the same or other lichen species from the same or adjacent stones.



## Are you able to assess the environmental factors of a specimen on a building stone or a monument for example by examining the lichen/bryophytes - toxicity etc

To me lichens tell stories and this ecological storytelling is what continues to pull me in. There is a Dutch study of lichen assemblages on hunebedden' or dolmens that shows that the lichen flora on these monuments change in response to nitrogen pollution by livestock farming in a matter of decades. Often, however, the stories are complex. On the Picardie Stone near Insch the lichen flora simultaneously shows elements of nitrogen pollution and upland assemblages that tolerate much more nutrient poor conditions. Lichens are important bio indicators, but interpretation is not always easy.

The recumbent stone circle survey for Forestry and Land Scotland, for example, raised important questions about whether lichen species we tend to associate with upland conditions found in lowland settings are examples of species persisting from a distant past when the landscape had a more upland character, or whether they have arrived more recently.

Our knowledge of lichen distribution reflects recorder effort and many of the upland fringe and lowland areas in North East Scotland where we find archaeological monuments have not been surveyed extensively in the past.



## Is there a big geographical reach for a particular type of lichen - so the same type would be on a hillfort in Devon as it would in Scotland or are there singular types only found in one area?



There are lichen species that are generalist and have a wide distribution and lichen species that are specialist and have a more limited distribution. The lichen flora on archaeological monuments in – say – Devon is likely to partly overlap with that of NE Scotland, but there will be important differences as well. From my surveys of lichen species on hillforts and recumbent stone circles, however, I have learned that the lichen flora of archaeological monuments is often relatively species rich and that the species composition is different from that on, for example, gravestones in churchyards.



**Hillforts and recumbent stone circles are often located in exposed locations and that gives the lichen flora often a more upland character as compared to that of churchyards in sheltered locations.**

## **For people who are new to looking at your specialism do you have any basic tips or signpost any beginners guides?**

Though crustose lichen species on rock tend to be more challenging to identify than leafy and bushy lichen species on trees, it is very well possible to identify some of the lichens on archaeological monuments in the field. The best strategy is to acquaint yourself with two or three eye catching species and then gradually add to that. Lichenologists will use Dobson's Lichens - an Illustrated Guide to British and Irish Species, but that field guide can be quite technical for the beginner.

To start with I would recommend the Lichens of Heaths and Moors and Churchyard Lichens foldouts published by the Field Studies Council as these provide a quick overview of key species you may encounter. In addition, I recommend joining a Facebook group like Lichen Spotters UK or Scottish Lichens as they provide invaluable support with identification. This autumn I will also offer a distance learning course on churchyard lichens which should be a good introduction to some of the species that grow on rock.

## **What basic tools will people need to start?**

For field identification of lichens I recommend a x10 hand lens that are available under the name jeweller's loupe online. A pocket camera or phone that takes sharp photos is also invaluable as it allows you to magnify photos on screen and examine details of the species up close.

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Read more about Petra's work on the [Scottish Lichens webpage](#)

# **Thank you Petra**