

Measuring lichens in the Arctic

by Freya Sykes

'10 855, 10 856, 10 857?!' I was sprawled across my tent's groundsheet, tangled up in a mess of food, clothes and field equipment. I had just finished my final day of fieldwork up on the moraines of Kebnekaise, Sweden's highest mountain, and through pure whim decided to count the number of lichens I'd ended up measuring for my research.

Ten thousand, eight hundred and fifty seven. It was little wonder that their electric green forms were scoured across my vision every time I closed my eyes.

By this point I had spent most of August up in the northern mountains of Sweden, traipsing between the many moraines fronting the glaciers of the Kebnekaise massif. My aim was to collect data for my dissertation project, an assessment of the applicability of lichenometry to dating Little Ice Age and 20th-century glacial fluctuations. At its very simplest, the technique proposes that as lichens are one of the first colonisers on the bare rock exposed after glacial retreat, the age of the exposed rock can be dated by the diameter of the largest lichen growing on it. In fact, glacial fluctuations here had previously been dated in this manner in 1973 by the Swedish geomorphologist, Wibjörn Karlén. I wasn't intending to repeat his work however. Rather I wanted to test a more recent statistical development of lichenometry, called the size-frequency technique. This utilises the entire lichen population on a surface, as opposed to just the largest lichen. Of course, it also means that I had to measure a lot of lichens!

Every day I would wake to a 7 km commute up Tarfala Valley. I'd then spend the day in the shadow of Kebnekaise's great bulk, watched over by the crinkled shapes of Storglaciären and Isfallsglaciären. On the rare days of sunshine, the two glaciers would reflect the light so strongly that it physically hurt to look at them. When the weather turned, they would retreat into the clouds, and I'd be totally isolated within a grey and featureless landscape. It seemed to be that I experienced the absolute best and the absolute worst of what the valley had to offer. One day all I could see was the ground beneath me, the next day everything was dusted with fresh snow, and the day after that I was chasing rainbows across the moraines.

Undertaking fieldwork in this landscape was an absolute privilege. Years and years of reading textbooks and papers and lecture notes all came to mean something when I could finally put them into practice in my own research. I'm not saying it was all blue, sunny skies — in fact, in literal terms, it mostly wasn't.

Spending that much time alone in a remote mountain environment was always going to have its tougher moments. While I was prepared for the isolation, there were many occasions when I was also very glad to be working near a popular hiking trail. During my more conversationstarved periods, I developed an alarming tendency to jump on unsuspecting hikers, just to break up the monotony of the

day. This did lead to one amusing moment when a group of lovely Swedes to whom I'd briefly introduced myself in Swedish overheard me talking to another woman in English. After I'd finished they came over to compliment me on my 'amazing' English accent, wondering how it could sound so genuine. Didn't really know how to answer that one... Just a natural, I guess?

After weeks spent with just a ruler and prolific spreads of lichens for company, the final act of my fieldwork was to take the beautiful trek up to Abisko, in order to leave the mountains. Not that the weather was going to let me go that easily. In one final act of farewell, the day went black and the heavens opened their gates. The landscape was flooded out, and I seemed to spend more time wading than walking. But with sodden feet, I finally stumbled upon civilisation again. Yet although the sight of a supermarket set my heart singing (a diet of porridge and coffee having worn just a little thin by that point), I'd rather acclimatised to tent life and was really quite sad to see the end of my fieldwork. Not that work has ended really — now that I'm back in the (relative) warmth and comfort of my Edinburgh flat, I have ten thousand, eight hundred and fifty seven lichens to deal with!