

## How many fungi does it take to build a macrolichen?

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It has been more than 140 years since the recognition that lichens are a symbiosis of fungus and alga. Over time, lichens have been shown to be able to associate with other photosynthesizing partners, including cyanobacteria, even in one and the same thallus. The certainty however around the assumption that one fungus and only one fungus is responsible for building a lichen led it to be literally codified into nomenclature: lichens shall carry the name of their fungus. This definition has withstood the test of time and even, notably, the failure in most cases to resynthesize whole, functioning lichens from two component parts. It has also created a situation whereby all other fungi are by definition extrinsic to the "core" symbiosis. What would then happen if we were to find out that many lichens consist of specific, replicated configurations of multiple fungi? How would it affect our assumptions, and the questions we ask? We'll discuss some of these conundrums in the light of new metagenomic and imaging data.