**A NEW APPROACH TO STUDY THE ROLE OF SPECIALIZATION IN SHAPING BIODIVERSITY PATTERNS OF LICHEN SYMBIONTS**

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Lichen symbionts display complex patterns of interactions with a wide array of specialization levels. Multiple hypotheses have been proposed that relate specificity with species abundance and geographic range, macroclimatic conditions, and coevolutionary dynamics. However, most assessments of specificity for lichen symbionts have relied on counting the number of partners regardless of their phylogenetic relatedness. Here, we present an approach to measure specialization in communities of interacting species while accounting for partner availability and phylogenetic relationships. We do so by integrating an existing metric of phylogenetic alpha diversity with a metric of specialization used in ecological network analyses. We then use our approach to determine the links between phylogenetic specialization, relative abundance, and niche space in *Peltigera* and its *Nostoc* cyanobionts from a systematic, multi- scale, sampling in Alberta. Our approach provides a quantitative framework to study the role of specialization in shaping biodiversity patterns of lichen symbionts.