**ECO-EVOLUTIONARY DRIVERS OF INTERACTION TURNOVER IN THE *Peltigera–Nostoc* SYMBIOSIS**

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Interaction patterns between lichen-forming fungi and their photobionts vary across spatial and evolutionary scales. The eco-evolutionary mechanisms driving interaction turnover are not fully understood for lichens, mainly because thorough ecological sampling at multiple nested spatial scales, including at an inter-biome scale, has not been implemented. A recent study of the lichen genus *Peltigera* and its *Nostoc* cyanobionts at an intra-biome (boreal) scale revealed that bioclimatic factors are more limiting than cyanobiont availability for explaining geographic distributions of *Peltigera* species. However, at the spatial and bioclimatic scale of that study, two main generalist *Nostoc* phylogroups dominated across the boreal biome. Therefore, an understanding of the spatial scale and drivers of *Nostoc* distribution, as well as the effect of environmental gradients and stochasticity on the occurrence of different symbiotic pairs, is still lacking. We are using the large-scale, systematic, multi-biome sampling of *Peltigera* specimens of the Alberta Biodiversity Monitoring Institute to ask three main questions: (1) What is the spatial scale, and associated environmental factors, of *Nostoc* phylogroup replacement? (2) How does this shape the structure of *Peltigera–Nostoc* interaction networks? (3) How is this constrained by their evolutionary relationships? We expect that the replacement of dominant *Nostoc* phylogroups occurs mostly at an inter-biome scale and is correlated with environmental factors that vary across the six biomes included in our sampling. We also predict that this inter-biome turnover will be reflected in the overall network structure, where modules will be restricted to specific biomes and there will be one main generalist (central) *Nostoc* phylogroup per module. Our results highlight the complex interplay between these eco-evolutionary drivers of interaction turnover at different spatial scales, shedding light on the assembly process of lichen communities.