

# Limitations and Relevance of Biological Nitrogen Fixation during Postglacial Succession in Cordillera Darwin, Tierra del Fuego, Chile

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© 2017 Regents of the University of Colorado. We tested the main hypothesis that nutrient accumulation during late stages of postglacial succession would decrease nutrient limitation of diazotrophic activity. We tested this hypothesis by adding carbon (C), phosphorus (P), and molybdenum (Mo) independently or in combination, and nitrogen (N) only to symbiotic, epiphylls on bryophytes, and free-living diazotrophs in three stages of glacier foreland succession in Cordillera Darwin (55°S), southern South America. Experiments were run in spring 2013 and 2014 and in autumn 2015. Diazotrophic activity (DA) was assessed by the acetylene reduction assay. Results showed no effect of C, P, or Mo added either singly or in combination in the spring incubations. During autumn, DA was enhanced by adding a mix of C, P, and Mo to the symbiotic N<sub>2</sub>-fixing *Gunnera magellanica* from young successional sites, while in the late successional sites, adding C and Mo alone to the diverse bryophyte carpet on the f