

# Effects of labile phosphorous and carbón on non-symbiotic N<sub>2</sub> fixation in logged and unlogged evergreen forests in Chiloé Island, Chile Efectos del fósforo y carbono lábiles en la fijación no simbiótica de N<sub>2</sub> en hojarasca de bosques siempreverdes manejado

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Nitrogen input to evergreen temperate forests of Chiloé Island, Chile occurs predominantly via non-symbiotic fixation (NSF). Because this is a bacterial-mediated process (diazotrophs), in addition to environmental factors (e.g., temperature and moisture), phosphorous availability and energy supply from carbón in the substrate may influence the rates of N fixation. Our hypothesis is that if both phosphorous and carbón are limiting NSF, this limitation would be greater in logged forests, where additions of labile P and C would stimulate microbial activity. Our objectives are to assess the effects of inorganic phosphorus and labile carbón (as glucose) additions (0 mmol P/L, 0.645 mmol P/L, 3.23 mmol P/L y 6.45 mmol P/L and 0 mmol P/L, 23.3 mmol C/L, 46.6 mmol C/L y 70 mmol C/L, respectively) on the rates of NSF measured in the litter layer of each forest in laboratory assays, under controlled temperature and moisture and using homogeneous litter samples. We studied lowland evergreen rain