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**Title:** *Impact of warming on Nostoc colonies (cyanobacteria) using modified open top chambers*

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In order to simulate the warming effects on colonies of cyanobacteria *Nostoc commune* L., three passive open-top chambers (OTCs) and three control cage-like structures (CCSs) equipped with soil temperature and soil volumetric water content (VWC) probes for continuous microclimatic measurements were installed in a wet hummock meadow, Petuniabukta, Billefjorden, Central Svalbard in 2009. Results of the first two years of manipulation were already introduced (Elster et al. 2012). These results revealed only negligible warming effect (0.1 °C) at the hummock base, so the photochemical performance and nitrogenase activity of *Nostoc* colonies was comparable in the OTCs and CBs. To increase the temperature differences between the OTCs and CBs, the OTC were covered by a perforated perplex lid in 2011. All microclimatic and ecophysiological measurements of *Nostoc commune* L. colonies were prolonged in modified conditions for additional two years (2011 to 2013). In the first year (2011 to 2012) the mean temperature difference between the CTCs and CBs reached 1.1°C on hummock bases and 3.8°C on hummock tops. The vegetative season 2012 was also wetter than in 2010 and 2011. The mid-June locality desiccation observed in 2010 and 2011 was not observed; only minor decrease, ca 10%, in volumetric water content was found at CTCs bases. Data on photochemical performance and nitrogenase activity of the *Nostoc* colonies are presently evaluated.