**Conservation Issues in the High Arctic and Pole-to-Pole Comparisons**

Warwick F. Vincent1 and Annick Wilmotte2

1Centre for Northern Studies (CEN) & Département de Biologie, Laval University, Québec City, QC, Canada

2 InBios-Centre for Protein Engineering, University of Liège, B-4000 Liège, Belgium

With the increasing impacts of global change, conservation activities are more important than ever to protect and preserve high latitude environments and their biota. Efforts to date in the Arctic have focused on higher plants and animals; for example, the Red List of threatened Arctic plants is currently limited to vascular species, and no attention has been given to lower plant and microbial communities that are often dominant features of far northern ecosystems. One of the largest northern conservation zones in Canada is Quttinirpaaq National Park, a 37,775 km2 region that extends to the northern coast of Ellesmere Island, Nunavut. Studies over the last two decades at the northern coastline of this park have shown that the land, lake and fjord environments contain diverse microbial assemblages and functions (‘environmental microbiomes’) and that these are responding strongly to the current trend of accelerated warming at these extreme high latitudes (82-83°N), leading to the extinction of certain ecosystem types. In Antarctica, increased (albeit still limited) attention is being given to protection measures for microbial ecosystems (e.g., ASPAs and SCAR codes of conduct for activities and research in terrestrial, geothermal and subglacial aquatic environments) and a similar level of stewardship is needed for analogous High Arctic microbial ecosystems. A Red List of vulnerable microbiomes in High Arctic and Antarctic environments may help inform conservation efforts.

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