

Northern Nature and Human Activities – Introduction

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The north, the northern regions, and the arctic. What they are? Do they have boundaries? All places and phenomena in the world have a northern dimension, a northern location.

The north is a direction. Chicago is north of Mexico City, Oulu is north of Helsinki. The North Pole, which is situated in the middle of the Arctic Ocean, is the ultimate north. Far in the north, for instance in Lapland, the north is almost synonymous with the arctic. The areas surrounding the North Pole receive very little solar radiation, and in winter only indirect solar radiation. For this reason those areas are cold environments with a short growing season and a summer.

The arctic certainly lies to the north, but the scientific methods to define the arctic can be disputed. Further, it depends upon the scientist's own background how to determine what is the arctic.

The following criteria for the arctic have often been presented: (1.) The Arctic Circle, an astronomic boundary, has been suggested as the southern limit for the arctic. There the sun during winter remains below the horizon. (2.) The northern tree-line, primarily controlled by climatic conditions, is also frequently seen as the southern limit of the arctic. The tree-line is easily visible in the landscape. It is an ecologically important ecotone between the boreal forests and the treeless tundra. It is the northern limit for forestry and agriculture. (3.) The 10 °C

isotherm for the warmest month of the year is suggested to form the southern boundary of the arctic because the northern tree-line tends to follow this isotherm. (4.) Permafrost characterizes the arctic, although permafrost areas can also be found at relatively southern latitudes, and sometimes the ground can even support forests. This is the case particularly in areas with a continental climate. (5.) Glaciers and sea ice are typical of northern and arctic areas. (6.) Northern lights are a polar and arctic phenomenon; the most frequent and brightest they are in the auroral oval, the belt surrounding the polar region.

When thinking of the arctic and the north in a more practical manner, the individual boundaries are not crucially important. The matter of primary importance is the basic character of those areas; the core, where several of the criteria presented exist.

In addition to scientific definitions there are political definitions for the north and the arctic. The European Union's Northern Dimension is such a type of political definition. It is a geopolitical definition related to the point of the compass and refers to the European Union's northern periphery. Its specific aim is to raise the European Union's profile in Northern Europe. The concept of the Arctic Environment occurs in many contexts, such as in names of institutes and journals.

The arctic and the high northern areas are unique and vulnerable. Living there and sustainable use of the areas' natural resources, such as oil, gas, industrial metals, game and fish demand knowledge and a continuous scientific research of physical, biological and social conditions.

The high latitudes were first inhabited by indigenous peoples with their own livelihoods. For instance, in northern Fennoscandia, reindeer husbandry has been traditionally practised by the Sámi people. As newcomers, people of a European background have changed local traditions. Those researching human activities in the north face these days the problems and conflicts with native people struggling to have the right for their traditional use of the land and waters. Intruding cultures have not only brought welfare, but also destructive habits and diseases. Our highly technocratic civilization has exploited natural resources and is responsible for the many indirect negative impacts on the remote northern regions and

the people living there. For example, air-borne pollutants and toxic metals spoil the arctic environment even if industrial activities take place far from these areas. This is due to air currents transporting emissions over long distances from the areas of production to the far north. It is also true that the arctic itself is increasingly industrialized. Also the growing interest of tourism to the northern and arctic regions has become a concern.

Increasing greenhouse effects and global warming with the associated environmental changes is of great concern. Perhaps of equal concern are also the new opportunities for the ecosystems and life, particularly at the high latitudes.

At the University of Oulu there is a unit called the Thule Institute. It focuses on Northern and Environmental Issues. The Thule Institute operates as a store of national and international expertise in the following research programmes: Global Change in the North, Northern Land Use and Land Cover, and Circumpolar Health.