Title:

Possible influence of various climate changes on the spreading of vegetation in forest-tundra ecotones in the Kola Peninsula

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Abstract: (Your abstract must use **Normal style** and must fit in this box. Your abstract should be no longer than 300 words. The box will 'expand' over 2 pages as you add text/diagrams into it.)

The climate induced changes of treeline ecotones have been reported and predicted for different locations in the Northern hemisphere, such as Fennoscandia, Urals, the Kola Peninsula, Alaska and Yukon (Kullman, 2002; Moiseev and Shiyatov, 2003; Lloyd, 2005; Kammer et al., 2009; Danby, Hik, 2007; Mathisen et al., 2009). The focus of this paper has been to study the modern condition of vegetation and possible changes in the species composition and spreading of plants in the forest-tundra ecotone in the Kola Peninsula, Russia. Our results in some areas of the Khibiny (altitudinal gradients) and in some areas around the lake Kanentjavr (latitudinal gradient) register the modern condition of vegetation and relations between lichen populations with higher plants. In conditions of the assumed climate warming higher plants will have more advantages in increasing their productivity (biomass) and expansion from the treeline towards forest-tundra and tundra ones both in the plain, and in the mountains. Lichens, being poor competitors as weak organisms, will decrease their abundance in ecotone communities at the boundary of forest due to the lack of, first of all, arctalpine species, less resistant to shading (which will be increasing due to the increase of higher plants cover). The growing number of precipitation in the flat conditions will result in the excessive humidification (expansion of water-logged areas), which lichens do not withstand – i.e. a significant degradation of lichen cover will take place. At the same time the consequences of the increasing humidification of climate will not tell much on the condition of the lichen cover on well-drained mountain slopes, as a whole. In case of climate cooling, more favorable conditions (compared to higher plants) will probably be preserved in ecotone communities along the forest-tundra boundary both in the plain and in the mountains for the lichen cover and the latter will increase its abundance provided the higher plant abundance decreases along with the decrease of the upper boundary of forest vegetation in the mountains and its retreat southwards in the flat landscapes.