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RUSSIA-JAPAN COLLABORATIVE STUDIES ON GEOGRAPHIC AND ECOLOGICAL CHANGES OF LARGE MAMMAL FAUNA IN THE ARCTIC AND SUB-ARCTIC YAKUTIA.

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Since the 1960s, systematic monitoring researches of tundra populations of wild reindeer (*Rangifer tarandus*) have been conducted in Yakutia (the republic of Sakha). From their analysis it was found that the rapid increase of domestic reindeer and then, degradation of tundra vegetation including lichen ('reindeer pasture') had occurred in the 80s. In the 90s, there were drastic declines in both of domestic and wild reindeer populations on all over the sub-arctic Yakutia. Simultaneously, transformation of fauna and flora started in this region. In the first decade of this century, population of wild reindeer has been further decreased and some sub-populations changed their distribution ranges. We conducted the Russia-Japan collaborative study of wild reindeer migration of Lena-Olenek (Anabar) population in 2010-2014 by satellite auto-tracking system. In the total, 57 wild reindeer were tracked and the durations of 50% of transmitters were 7-8 months besides of the very harsh winter temperature conditions (to -50- -60° C for 1-2 months). We also conducted the traditional ground and aircraft monitoring (direct observations). In these studies, we clarified that the timing and route of their migration and the wintering grounds have significantly changed in relations to global climate change and some anthropogenic factors. And more, northward expansions in distribution ranges of large carnivorous species (wolf, black bear, brown bear) and the increasing competition among wild reindeer, domestic reindeer, forest reindeer (another subspecies) and endangered musk-ox are progressing. These changes in the arctic and sub-arctic fauna have already introduced new conflicts with local small numbered people and need new policy and tactics in their conservation and resource use.