

Ecological changes and their influences of wild reindeer populations in eastern Siberia

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Reindeer *Rangifer tarandus*, known for large-scale seasonal migration, is widely distributed in the Arctic and sub-Arctic regions, and the northern indigenous peoples have been living with them. Though reindeer may be influenced by changes in hydrological cycle and vegetation with global warming, there is little information about the present status of wild reindeer in eastern Siberia. In our preliminary survey (interviews to local people) in the Sakha republic, each local population has changed in its number and distribution by plural factors originated in the climate change. Therefore, we started tracking 15 wild reindeer (7 males and 8 females) in their summer range of the upper Olenek area by using the ARGOS satellite positioning system from August 2010. We found that this summer range is used by at least two populations; a northbound migration group (NMG) and a southbound migration group (SMG). Their migrating distances and their wintering landscapes are quite contrastive; forested area (tyga) 500km far from the capturing points for SMG, and open land (tundra) about 1000 km for about NMG. The wintering range of SMG is forested area which has been thought as that of other subspecies, forest reindeer *R. t. fennicus*. We should analyze their genetic status (tundra, forest, or crossing), because there is a "conservation dilemma" in the overlap area of these 2 subspecies. And also the genetic analysis should be needed between these 2 migration groups and semi-domestic reindeer, because large scale abductions of semi-domesticated reindeer by the wild may occur along these unknown new migrating routes. Each reindeer population used different habitat and different route every year, and showed frequent wandering behavior in small number. These ecological changes of reindeer populations are introducing their low growth rate, local high foraging pressure on vegetation, strong competition with musk ox, high-cost reindeer hunting, expansion of wild wolf range, and high predation pressure on domestic reindeer and horses. Thus, we need more complex conservation policies, with ecosystem-level management and rights protection of northern minorities.

Keywords: eastern Siberia, wild reindeer, migration, global warming, northern indigenous peoples, vegetation