

Contested landscapes:

social-ecological interactions between forestry and reindeer husbandry

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Abstract

Throughout northern Fennoscandia, reindeer husbandry is a central part in the cultural heritage of the Sámi people. In its history, Sámi culture and reindeer husbandry have undergone significant adaptations to environmental, social and political challenges. Landscape changes on the winter grazing grounds were mainly driven by resource exploitation, especially by industrialized forestry. Important grazing resources were lost, i.e. terrestrial and arboreal lichens that constitute essential key elements in the herding year.

In my thesis, I explore the consequences of these transformations in Swedish boreal forests for reindeer husbandry. The multi-disciplinary approach integrates interview studies, ecological fieldwork and theoretical modeling of forest development.

I emphasize the understanding of landscapes as multi-dimensional concepts with ecological, social and economic components. They interact in determining the amount of landscape fragmentation in physical or administrative ways, or in enabling reindeer herders to move between different landscape elements. These elements, e.g. forest stands of different ages, can react differently to winter weather. Thus, they enable reindeer herders to adjust their grazing grounds according to the availability of forage, mediated by snow conditions. However, forestry practices have reduced the abundance of old-growth forests, and therewith the functionality of the landscape. By comparing snow conditions in different forest types, I show that multi-layered canopies can offer a more diverse pattern of snow hardness. However, the interaction between forest characteristics with snow is strongly dependent on weather conditions, e.g. the timing and intensity of warm spells. The prevalence of single-layered forest stands therefore can lead to a reduction in snow variability and potentially restricts the availability of suitable grazing grounds for reindeer. If snow conditions hinder reindeer in foraging on terrestrial lichens, old forests formerly supplied reindeer with arboreal lichens. I show how industrial forestry has reduced the availability of this emergency forage by the reduction of old forests and increased landscape fragmentation and analyze the consequences of different management strategies on future habitat availability for arboreal lichens. By integrating these results into a model of forest management, I offer insights into consequences arising from different priorities that either favor timber production or the development of lichen-rich grazing grounds.

In conclusion, I emphasize the importance of landscape diversity, as well as the ability to make use of this diversity, as a source of adaptability of reindeer husbandry to changes in grazing conditions by e.g. winter weather dynamics. A shared future of reindeer husbandry and forestry could be fostered by encouraging the social-ecological co-evolution of multiple use landscapes and the enhancement of the cultural and biological significance of the Swedish boreal forests.

Keywords

Reindeer husbandry, forestry, adaptive capacity, arboreal lichens, snow, winter pasture, natural resource management, multiple use, land-use conflict, habitat fragmentation

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