

## Finnish reindeer ranges - History, research and aspects of multiple use

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In Finland 30 - 60 % of the reindeer winter food consists of lichens. Thus the maximum numbers of reindeer in the reindeer herding co-operatives, which are determined every ten years, are based mainly on the quantity and quality of winter ranges. The first inventory of reindeer pastures was carried out by Finnish senate in 1912. The co-operations marked on maps their ranges and gave descriptions about them. In 1936 and 1962 inquiries were repeated by the association of co-operatives. In 1966 results of the third national forest inventory (NFI) were utilized in estimating the area of mineral soils in every co-operative (Helle 1966). The different lichen pastures were graded on the basis of their production capacity and possibility of reindeer to get forage under the snow. Biomasses of the reindeer lichens (*Cladina* spp.), hair-grass (*Deschampsia flexuosa*) and arboreal (*Bryoria* and *Alectoria* sp.) lichens were evaluated experimentally as an integrated part of NFI in 1976 - 1978 (Mattila 1981).

In the beginning of 1970's the number of counted reindeer (over 1 year old) in Finnish reindeer herding district was 113 174 (1.6 reindeer/km<sup>2</sup> mineral soil). During the past 15 years the number has doubled and now there is on average 3.3 reindeer/km<sup>2</sup> mineral soil. However, the differences between co-operatives are great: from 1.2 to 5.4 reindeer/km<sup>2</sup>. The highest densities are found mainly in the northernmost co-operatives. In general, meat production per/ha has increased in the whole reindeer herding district. Partly this is because of intensive supplemental feeding.

The most important lichen range types were studied by L. Kärenlampi in different parts of

Finnish reindeer husbandry area in 1972. An inventory of vegetation was made on part of these sample areas in 1983 (Kautto 1985). The biomasses of forage lichens had reduced in the passed 11 years. The vegetation of bottom layer as well as field layer had become more patchy. The main species in the bottom layer were *Cladina mitis* and *C. rangiferina* with hornlichens, dwarf shrubs and mosses. Arboreal lichens had reduced clearly in the entire trees and not only in the reindeer grazing height. The scenes of the natural resource satellites give new possibilities for the interpretation of different forest characteristics. Their use in reindeer range inventory is under study.

Reindeer husbandry and forestry have not been able to avoid conflicts in Finland. The best forests with arboreal lichens have been cut. For example in the reindeer co-operative of Poikajärvi this has led to supplemental feeding of reindeer since 1969. The amount of hay used for that has increased to nearly 20 kg. At the same time the number of counted and slaughtered reindeer and meat production has decreased.

The increased tourism is a problem in the northern co-operatives. In early spring the walkers and snowmobiles disturb calving for example in the co-operative of Käsivarsi, especially at the popular Kilipsjärvi - Halti area. Lack of information is one of the reasons for that. During 1974 - 83 together 23 298 reindeer were killed by vehicles and trains in Finland. Reindeer deaths were concentrated in the heavily trafficked herding areas. During 1976 - 83 predators killed 8 900 reindeer in Finland. The worst killers were wolf, wolverine, bear and eagle.