

## Land-use planning in reindeer husbandry via satellite

We compile and digitally systemize local knowledge about reindeer husbandry based on satellite image interpretation, field inventories, satellite-based vegetation classifications, and mapping of other land-user's activities in a custom-made GIS.

### Background

The reindeer husbandry area covers almost half of Sweden's landmass with reindeer using mountainous areas in summer and forested areas in winter. Because of the extensive areas used for reindeer grazing, the needs of the reindeer industry may at times conflict with needs of other land users. Lack of knowledge and understanding between the reindeer industry and the timber industry has often led to heated debates. Remote sensing and Geographical Information System (GIS) become valuable tools in attempting to identify, map, and communicate essential resources for reindeer, in relation to the needs and activities of other land users.

### Objective

To improve communication and land-use planning in reindeer husbandry and forestry we compiled and digitally systemized traditional ecological and landscape knowledge for six Swedish reindeer herding districts (in Swedish; sameby). Compiled information came from satellite image interpretation, field inventories, and satellite-based vegetation classifications as well as from mapping activities of other land users and was compiled and stored in a custom-made GIS. The goal with the land-use plans was to increase the knowledge and understanding of reindeer husbandry and to provide information to facilitate land-use consultation with other land users and landowners, such as the timber industry. The final land-use plans should also facilitate in planning of the operational reindeer management for the reindeer herding districts.

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### The Process

The development of land-use plans for reindeer husbandry consisted of three parallel ongoing processes.

1. In the categorization, identification, and delineation of important grazing lands we focusing on areas of greatest importance to the reindeer. The work was done for each grazing season by computer-screen digitizing with satellite images displayed as background. In image 1 areas with ground lichen important in winter were delineated in red.

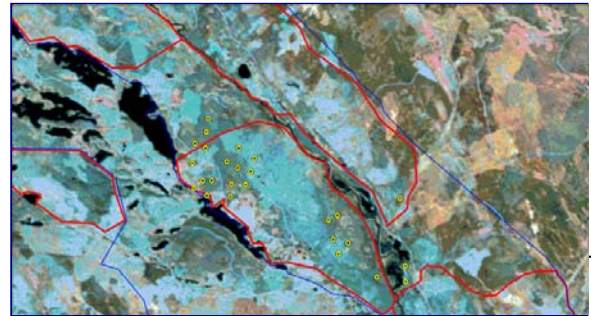


Image 1

2. Satellite image classification of reindeer habitat was carried out both in the forest (Image 2) and mountain areas.

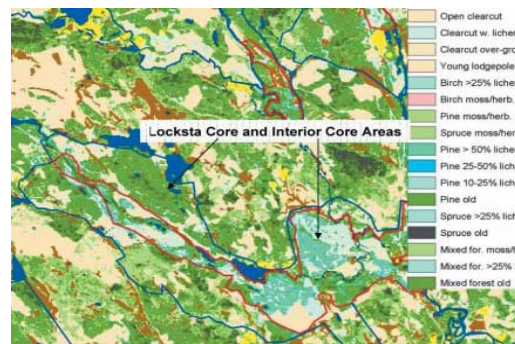


Image 2

3. Mapping of other land-use activities was carried for each reindeer herding district.

The three processes were combined in a custom-made GIS into final land-use plans for reindeer husbandry.

### Partners

The work is carried out in close cooperation between the involved reindeer herding districts, Tåssåsen, Vilhelmina Södra och Norra, Östra Kikkejaure, Malå och Sirges Sameby SLU (Dept. of Forest Resource Management and Geomatics), The Regional Forestry Board, and the County board of Administration. The current project is funded by the Swedish Space Board, The Swedish Agricultural Board and MISTRA (RESE) together with Sveaskog AB, Holmen Skog AB, StoraEnso AB, Statens Fastighetsverk och SCA AB.