



ARCTIC CENTRE
ARKTINEN KESKUS



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of Animal Nutrition
and Management

Herder's knowledge and repeated measurements of reindeer use set the baseline for understanding reindeer impact on woody taxa

Anna Skarin, Mariana Verdonen, Timo Kumpula, Marc Macias-Fauria and Bruce C. Forbes

Part of RISES and HUMANOR-project, Arctic Centre, University of Lapland, Finland

Willow growth and reindeer

- Willow growth preconditions well-known, but..
- How is willow growth connected to reindeer habitat use and foraging?
- Do grazing and trampling check shrub growth in a warming climate?

Heavily grazed/trampled ridge-top tundra



Heavily browsed low erect *Salix* shrubs



Exposure gradients control snow cover/shrub height

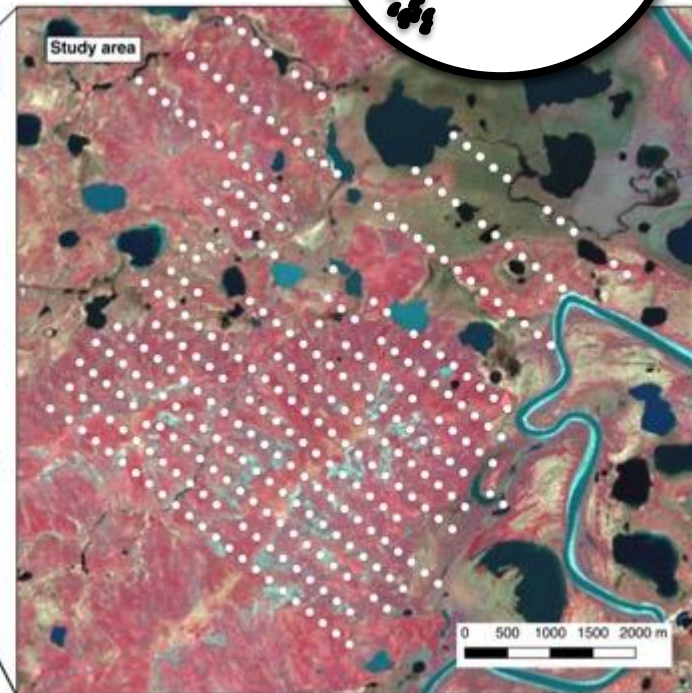


Reindeer habitat use

- To capture the effect of trampling we need to measure the general use of the area – pellet-group counts
- To capture the effect of grazing we need to register reindeer behaviour at the small scale or the community scale where we can expect to capture the selection of plants and plant communities – GPS-data

Pellet-group counts

- Area with massive landslide event in 1989
- Number of pellet-groups in each plot related to vegetation type and topography
- Established and cleaned 322 plots in 2013
- Revisited and cleaned plots
 - 2014 – 269 plots
 - 2017 – 212 plots



Reindeer habitat use

Related pellet-group to:

- Elevation
- Ruggedness
- Land cover types - satellite
- Shrub height (centre of each plot)

- **Low use**
 - *Tall willows (salix)*
 - Higher shrubs
- **High use**
 - *Dwarf shrub tundra*
 - *Carex Sphagnum heaths*
 - Rugged terrain
 - Ridges



Vasili reindeer herder in Yamal says “The reindeer eat everything, they take a bite here and leave there. They don’t just focus on one vegetation.”



Vasili reindeer herder in Yamal says "From mid June until mid August we try to be in landslides and this type of vegetation with a lot of greenery, we try to fatten the reindeer"

Reindeer habitat use and herders knowledge

- Grazing while walking in all types of vegetation
- Important with insect free areas, ridges, and fresh water (diarrhea)
- Tall Salix – used during warm weather
 - Grazing under the willow
 - Insect relief
 - Scratch antler
- Landslides - green vegetation

Summary

- All types important - reindeer are opportunistic feeders, but prefer fresh and nutritive forage
- High use
 - Dry dwarf tundra/Carex Sph tundra
 - High elevation, rugged areas
- Low use
 - Landslides
 - Tall Salix, height of salix? wet /dry?



Thanks for listening!



ARCTIC CENTRE
ARKTINEN KESKUS



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of Animal Nutrition
and Management



Contact: anna.skarin@slu.se