Space Innovative System to Monitor Animals – SISMA

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Context and challenges

Due to an ever changing environment, traditional herd management has shown its limits

- Sustainable herding / hunting
- Replenishing genetic stocks
- Identify vulnerability and threat levels
- Enhance public / private collaboration

SISMA objectives

For herders → Help them raise and keep reindeers safe
For citizens and state regulators → Respond to health concerns and food security
For scientists → Study and understand the conditions of a productive, sustainable eco-system

For herders

Localisation : I am missing animals for the gathering, or some of them entered in the city. Where are they ? How do we organise to have them back ?

Health and disease : I found 20 reindeers dead and this seems to be do to infectious diseases. I need to tell the veterinarian and the local herder community to avoid the place. I want to know if this contamination relates to feeding area.

Land use / Land cover : The animals like this place for feeding, what is its characteristics ? Where is the next closest water point ? does this spot house other herds, other species ? Where was last year's spot ? How long can they stay ?

Land use / land cover

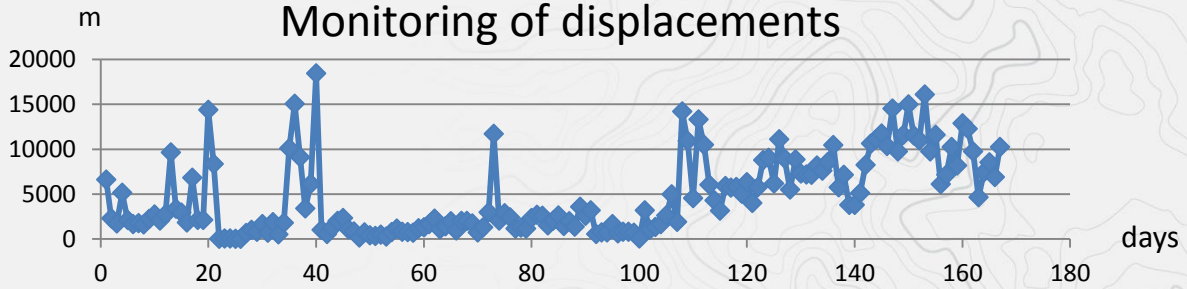
- **To monitor reindeer conditions, habitats and landscape**
  As continuum observations (past & present)
  Because the herds themselves are declining
    And the landscapes of their seasonal ranges are changing rapidly
- **To implement an integrated approach for a performing observation capacity**
  For animal identification, traceability and performance recording
- **To qualify & raise the scale of observations across herds, regions, time, & users**
  Because of the regional driving forces and migratory nature of the animals

- **To have simple access to data and actionable information (per usage)**
  Because users are not specialist of GIS technology, satellite data.
- **On demand precision management**
  Cf. melting of permafrost, recovery time of pastures

CLS GROUP

Results so far

IBPK – Yakutia / Taiga – Collar 110378

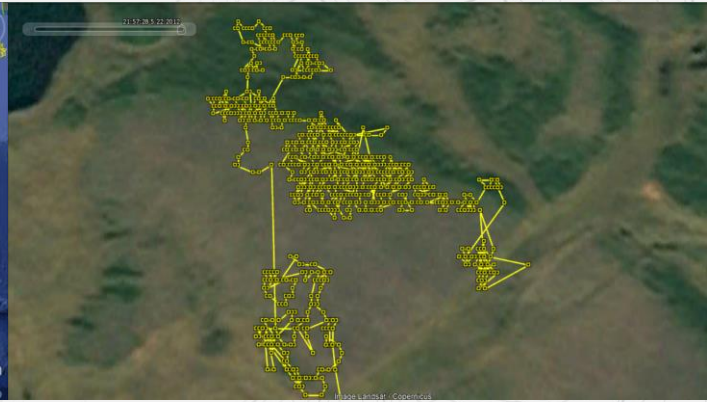


Scope/Result:

- The collar system has been revised to allow a very precise trajectory (20m) for the daily journey of the animal
- The journey can be compared with land use/land cover data, vegetation status and with the calendar of activities of the farmers. Such a study allows a better understanding of reindeers behavior and should improve the farmers activities.
- Allow to optimize their activity and to reduce significantly herder expenses when they have to search for their reindeers

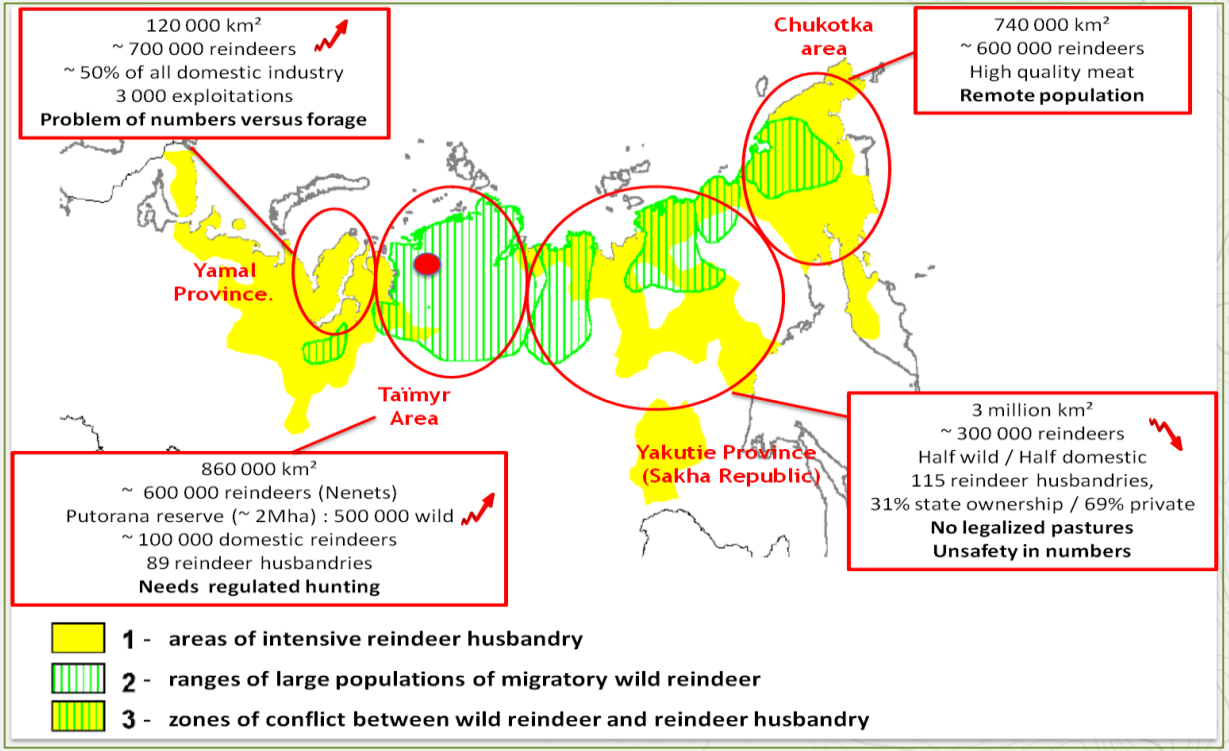
Results so far

IBPK – Yakutia / Tundra - Collar 120243

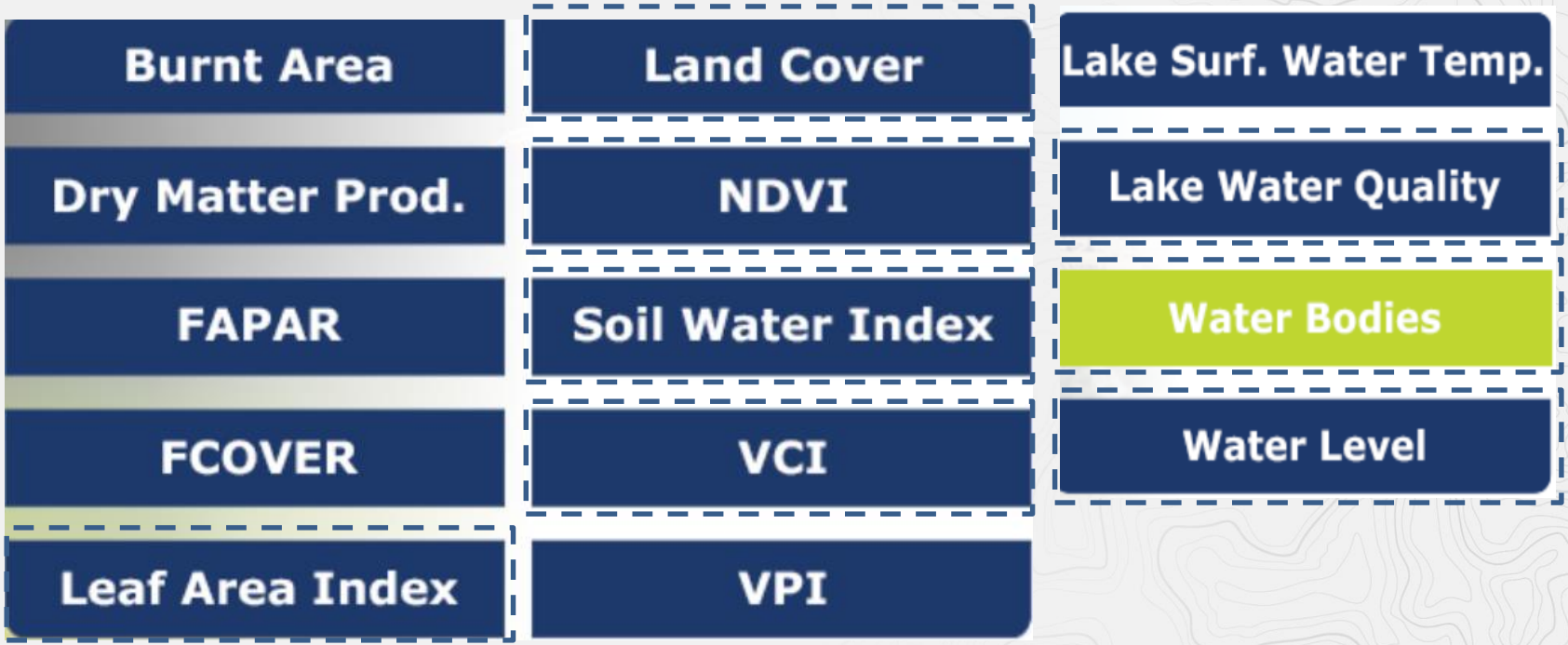


During the 1st 2 months, the elk remained on quite a limited surface of land, which behavior can be directly related to deep snow in the soil.

Regional analysis



SISMA and Copernicus



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