

Project information

Keywords

Adaptive monitoring, food webs, climate impacts

Project title

Climate-ecological Observatory for Arctic Tundra

Year

2016

Project leader

Rolf A. Ims

Geographical localization of the research project in decimal degrees (max 5 per project, ex. 70,662°N and 23,707°E)

Svalbard; 74-81°N, 15-30°E, Varanger Peninsula; 70-71°E, 28-31°E

Participants

UiT, NP, NINA, MET, UNIS

Flagship

Terrestrial

Funding Source

UiT: 1,7 mill

MilDir: 2.0 mill

Summary of Results

COAT is a strategic activity within the terrestrial flagship that aims to develop and run an ecosystem-based adaptive monitoring system for arctic tundra in Svalbard and the Norwegian mainland.

The financial support from the Fram Centre has allowed us to maintain several monitoring series in Svalbard and the Varanger Peninsula as well as to develop new monitoring tools. The following other achievements have been made in 2016:

- Two master theses have tested standard methods for making population census of ptarmigan populations in spring and show that they do not work for sub- and low Arctic mainland Norway
- A comparative analysis between North America and North Europe has shown that different winter climate regimes set the stage for fundamentally different food web structure and functioning (Boonstra et al. 2016). Results and insight from COAT contributed significantly to this analysis
- In our sister observatory at Yamal a Rain-On-Snow (ROS) event caused severe mortality in semi-domestic reindeer and the massive amounts of carrion subsidies that resulted from this caused an influx of boreal scavengers/predators in tundra (Sokolov et al. 2016).
- COAT has contributed to circumpolar roadmap for monitoring tundra vegetation (Walker et al. 2016).

Master and PhD-students involved in the project

Aurelie Delaye, MSc 2016

Marita Anti Strømeng, MSc 2016

Capucine Baubin, MSc 2016

Trond Elling Barstad, PhD 2016

For the Management

Standard methods for monitoring ptarmigan populations do not work for the rock ptarmigan in the Norwegian mainland, which means that new methods need to be developed to monitor and thus manage this presently redlisted species.

Published Results/Planned Publications

Sokolov, A.A., Sokolova, N.A., Ims, R.A., Brucker, L. & Ehrich, D. 2015. Emergent rainy winter warm spells may promote boreal predator expansion into the Arctic. *Arctic* 69: 121-129..

Boonstra, R., Andreassen, H.P., Boutin, S., Husek, J., Ims, R.A., Krebs, C.J., Skarpe, C. & Wabakken, P. 2016. Why Do the Boreal Forest Ecosystems of Northwestern Europe differ from those of Western North America? *BioScience* 66: 722-734.

Walker, D.A., Daniëls, F.J.A., Alsos, I., Bhatt, U.S., Breen, A.L. Buchhorn, M., Bültmann, H., Druckenmiller, L.A., Edwards, M.E. Ehrich, D., Epstein, H.E., Gould, W.A., Ims, R.A., Meltofte, H., Reynolds, M.K., Sibik, J., Talbot, S.S. & Webber, P.J. 2016. Circumpolar Arctic vegetation: a hierarchic review and roadmap toward an internationally consistent approach to survey, archive and classify tundra plot data. *Environmental Research Letters* 11 (2016) 055005

Communicated Results

Foredrag i NRK2 TV Kunnskapskanalen 12. mars. «Klimaendringer i Nord».

Kronikk i Finnmark Dagblad 10. april. «COAT Varanger»

Kronikk i Svalbardposten 8. april, «Vil overvåke klimatrusselen»

Kronikk i Svalbardposten 8. juli, «Raske klimaendringer gir overraskelser»

Budget in accordance to results

The funding from the Fram Centre was used according to plans; i.e. to run the long-term observation series in Varanger and Svalbard and to test new census methods.

Could results from the project be subject for any commercial utilization

No

Conclusions

The aims of the project was fulfilled and the funding obtained from the fram Centre's terrestrial flagship has contributed significantly to the development/maintenance of the COAT program.