



CBMP Terrestrial

October 10, 2018 – Rovaniemi, Finland



*The State of the Arctic Biodiversity Terrestrial Report
(START)
The Circumpolar Biodiversity Monitoring Program,
Terrestrial*

*Chair:
Mora Aronsson
Swedish Species
Information Centre, Sweden*

*Chair:
Starri Heiðmarsson,
Institute of Natural
History, Iceland*

CBMP Terrestrial Program

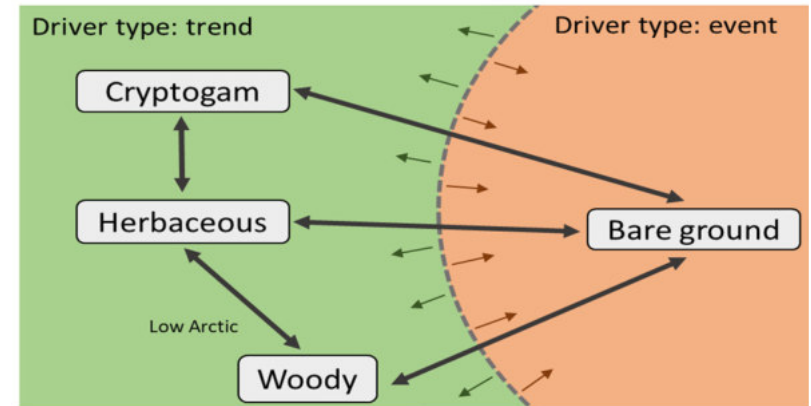


- Sara Longan** – Introduction to the CBMP and StArT
- Niels Martin Schmidt** – AMBIO special issue on terrestrial CBMP
- Mora Aronsson** – Key findings for StArT
- Kristine Westergaard** – Invasive species on a northward march
- Stephen Coulson** – Finding and measuring the invisible biodiversity
- Santtu Kareksela** – Current prioritization approaches
- Panel/Round table** – moderator: **Jason Taylor**



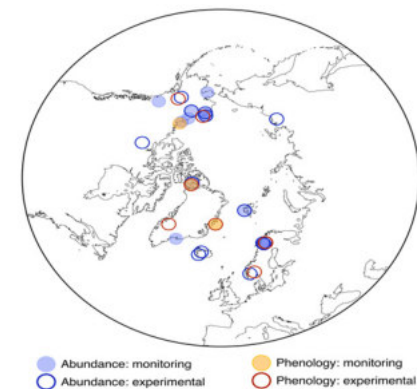
Drivers

- There is a need to discuss and develop new conceptual models for High Arctic vegetation due to the rapid environmental change
- Specifying expected impacts of biotic and abiotic drivers of vegetation change in conceptual models can guide monitoring
- General models need to be accompanied by ecosystem-specific models that transfer to adequate list of monitoring variables and subsequent analysis



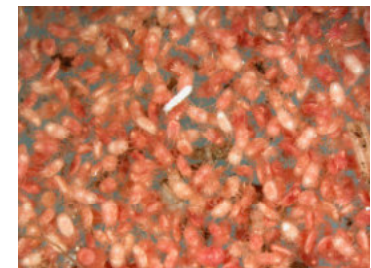
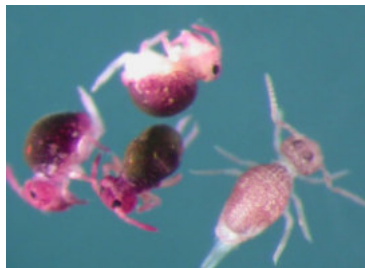
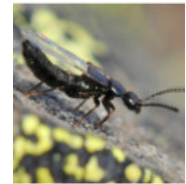
Vegetation

- Plot-based vegetation surveys provide detailed insight into vegetation changes at sites around the Arctic and improve our ability to predict the impacts of environmental change on tundra ecosystems.
- Both long-term monitoring and experimental manipulation of environmental drivers (e.g. temperature) have revealed widespread impacts of environmental change, particularly climate warming, on tundra vegetation.
- General responses to natural or experimental warming include an increase in overall plant cover, particularly in the abundance of shrubs and grasses and a decrease in lichens and mosses.



Arthropods

- Huge gaps in knowledge, 5-6 FECs, 4000+ species
- Current monitoring poor, species inventories incomplete and knowledge of ecological roles lacking
- Basic needs: Long-term international effort, baseline data and higher priority to arthropods
- Advanced needs: Digitised species inventories / Barcode libraries



Large mammals

- Reindeer/Caribou
 - currently mostly declining
 - changes in distribution, reduction and fragmentation
- Muskoxen
 - stability during last decade
 - earlier decline in largest population might foreshadow future decline

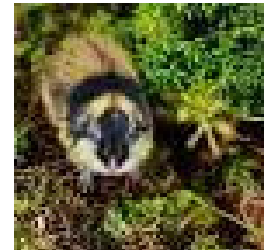


Small mammals

- Lemmings not showing negative trend in population size except low-arctic populations sympatric with voles

Mammal monitoring

- For mammals it appears that monitoring would improve with:
 - synchronized protocols with more attributes added
 - gaps in monitoring to be filled





Key facts for the StArT report



Falcons

- First Pan-arctic comparison of status and trends in FEC attributes of the top predators Gyr Falcon and Peregrine Falcon from 24 monitoring sites across all Arctic nations.
- Both species appears stable throughout the circumpolar Arctic – the Peregrine largely recovered from the pesticide-induced 'low' about 40 years.
- The demographic parameters 'occupancy' and 'productivity' show marked variation, in some areas likely affected by more variable weather conditions.
- Huge potential exists for further analysis of temporal trends in breeding phenology and identify covariates (e.g. weather, NDVI/vegetation) to investigate annual variation in occupancy and productivity.
- >20 monitoring programmes still active and available for supporting CBMP in the future.

Ptarmigan

- Rock ptarmigan
 - Negative trend in Iceland and Greenland
 - Positive trend on Svalbard and Newfoundland
 - no significant trend in Alaska
- Willow ptarmigan
 - Negative trend in mid-Sweden and eastern Russia
 - No significant trend in northern Fennoscandia, North-America and Newfoundland





Key facts for the StArT report



- Advice for monitoring includes better coordination, standardisation of methods, improved consideration of Traditional and Local Knowledge (TLK) and attention to filling **key gaps** (SAMBR - Key Findings and Advice for Monitoring)



Panel/round table



Moderator: Jason Taylor, US National Park Service

- **Cynthia Jacobson**, CAFF chair, US Fish and Wildlife Service
- **Sara Longan**, North Slope Science Initiative, Anchorage
- **Kristine Westergaard**, Norwegian Institute for Nature Research
- **Stephen Coulson**, The Swedish Species Information Centre
- **Santtu Kareksela**, Metsähallitus, Parks & Wildlife Finland
- **Erica Oberndorfer**, CAFF-IASC Fellow (Labrador, Canada)
- **Virve Ravolainen**, The Norwegian Polar Institute

