CANADIAN HIGH ARCTIC RESEARCH STATION

www.science.gc.ca/CHARS

CHARS and CNVC Support and Operationalization

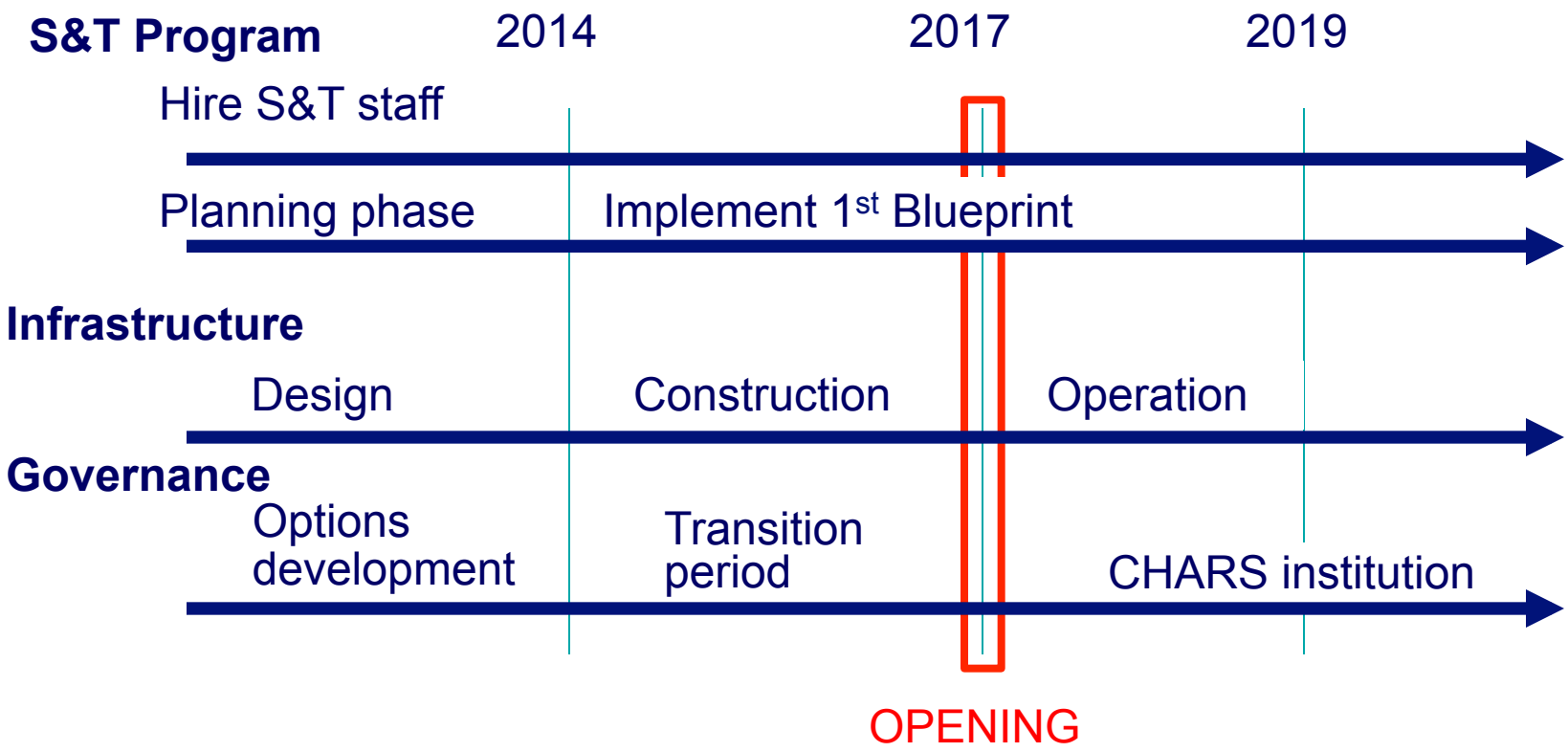
Donald McLennan
Head - Monitoring Science
CHARS

PM announces support for CHARS

On August 23 2012, the PM announced:

- $142.4 million over six years for the construction, equipment, and fit-up of CHARS
- $46.2 million over six years for the CHARS Science and Technology Program
- $26.5 million per year for the on-going S&T program and operation of the station starting in 2018-19

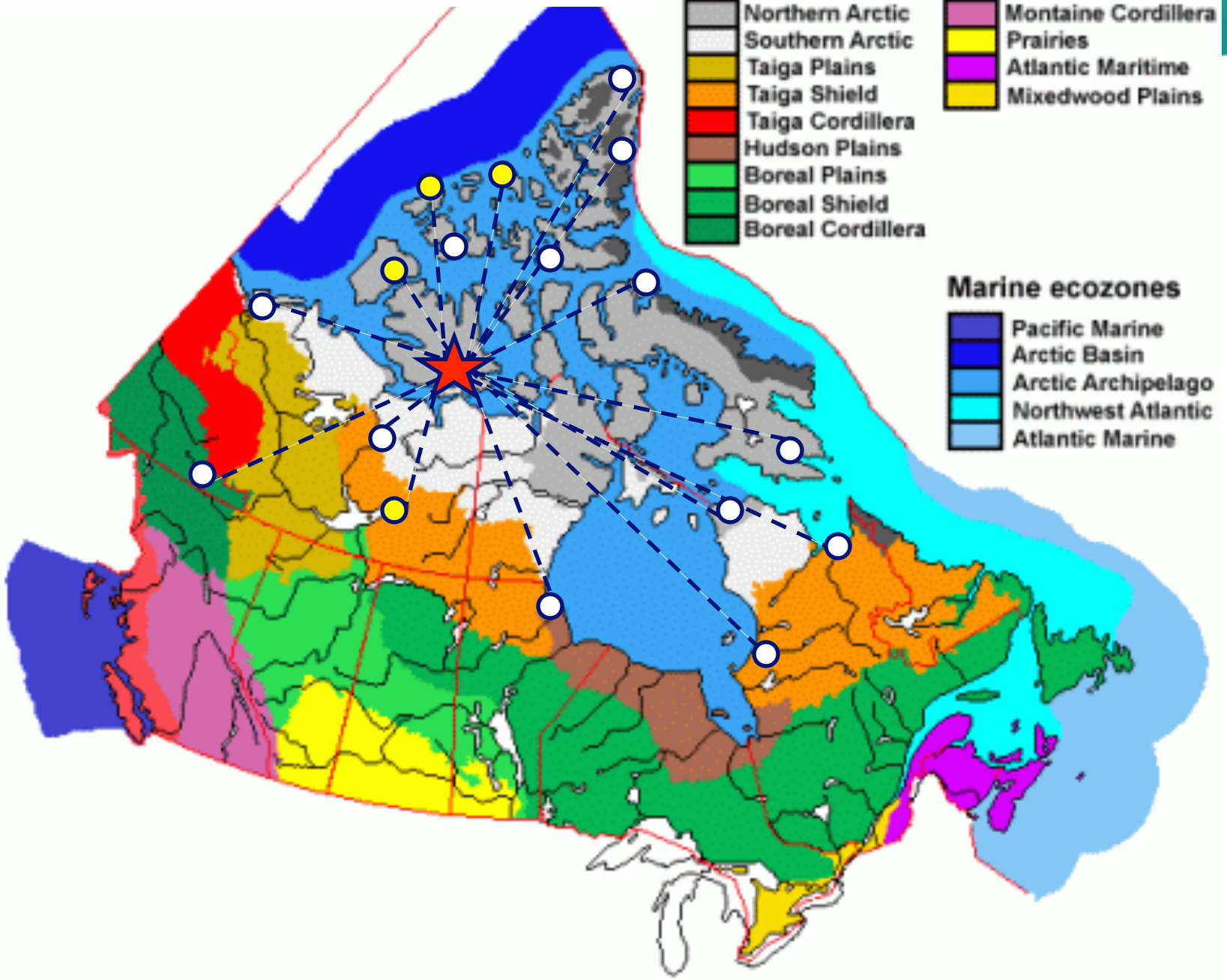
Next Steps for CHARS



For more information, please consult science.gc.ca/CHARS

Canada

'Hub and Spoke'



CHARS Science Program

Cross Cutting Activities

- ✓ Monitoring
- ✓ Knowledge application
- ✓ Logistics
- ✓ Education and outreach
- ✓ Traditional knowledge
- ✓ Techology transfer

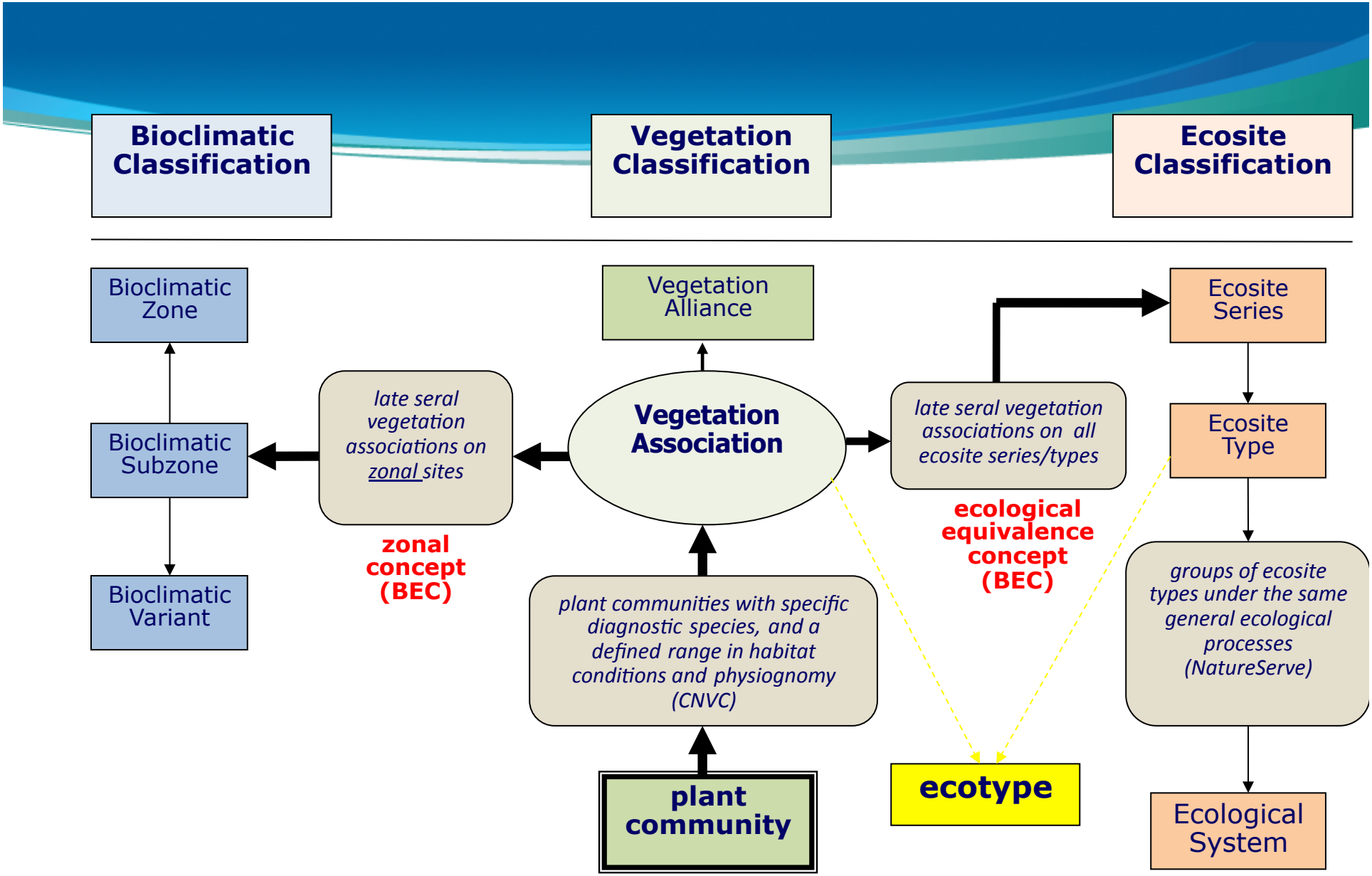
Prioritized Activities

- ✓ Alternative/renewable energy
- ✓ Improved baseline monitoring data for mining and other developments
- ✓ Development of Autonomous, Intelligent, Marine Systems
- ✓ Cryosphere Change
- ✓ Food security , and well-being of Northerners

Why Support CNVC Arctic ?

Applications

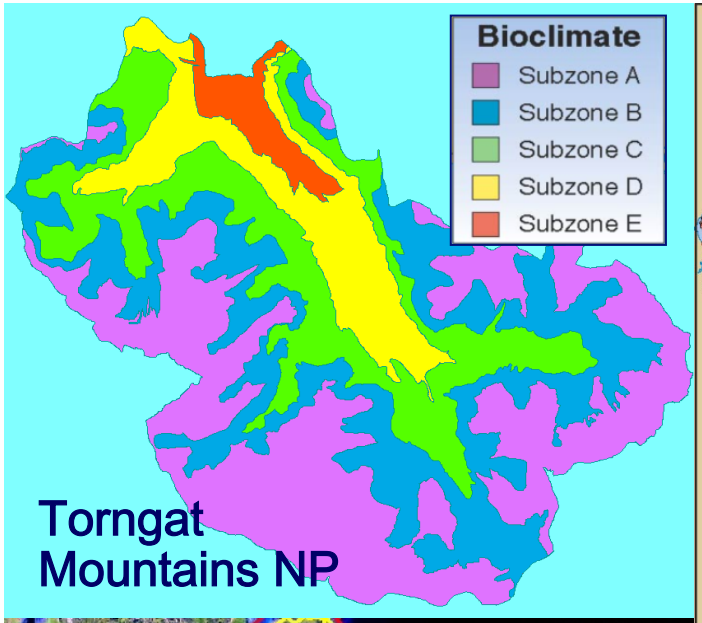
- monitoring/research designs – reference sites, cumulative effects, replication
- extrapolating monitoring/research results – scaling up biomass and C budgets
- wildlife studies, habitat mapping
- modeling cosystem change

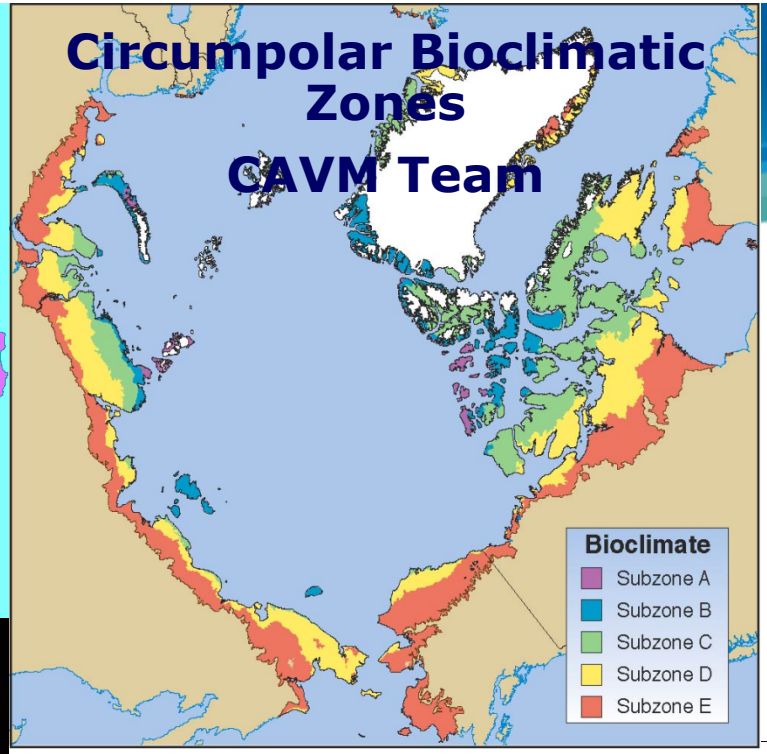


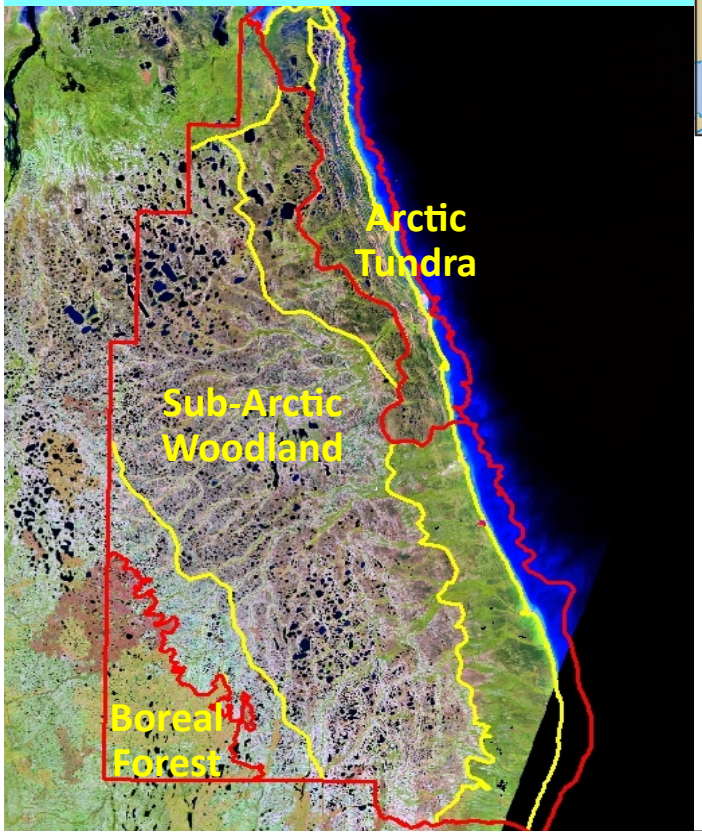
Parks Canada Agency - Terrestrial Ecosystem Classification (PCA TEC)

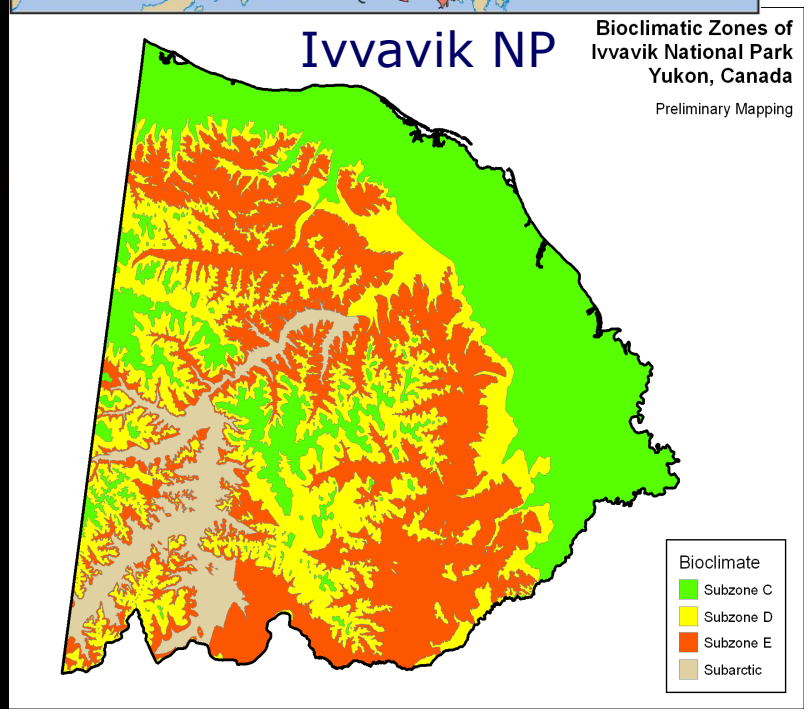
C

Arctic Bioclimatic Zones

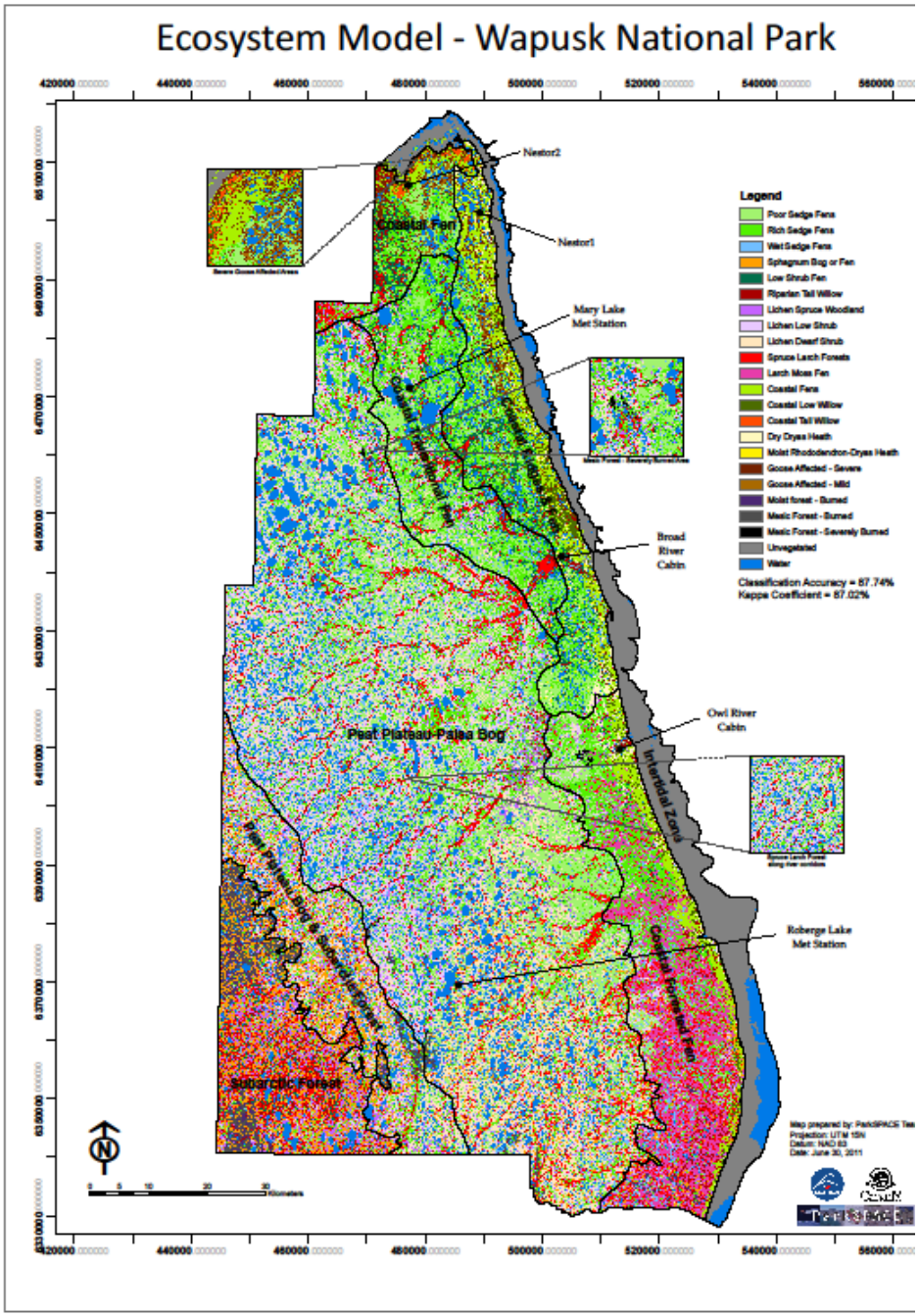


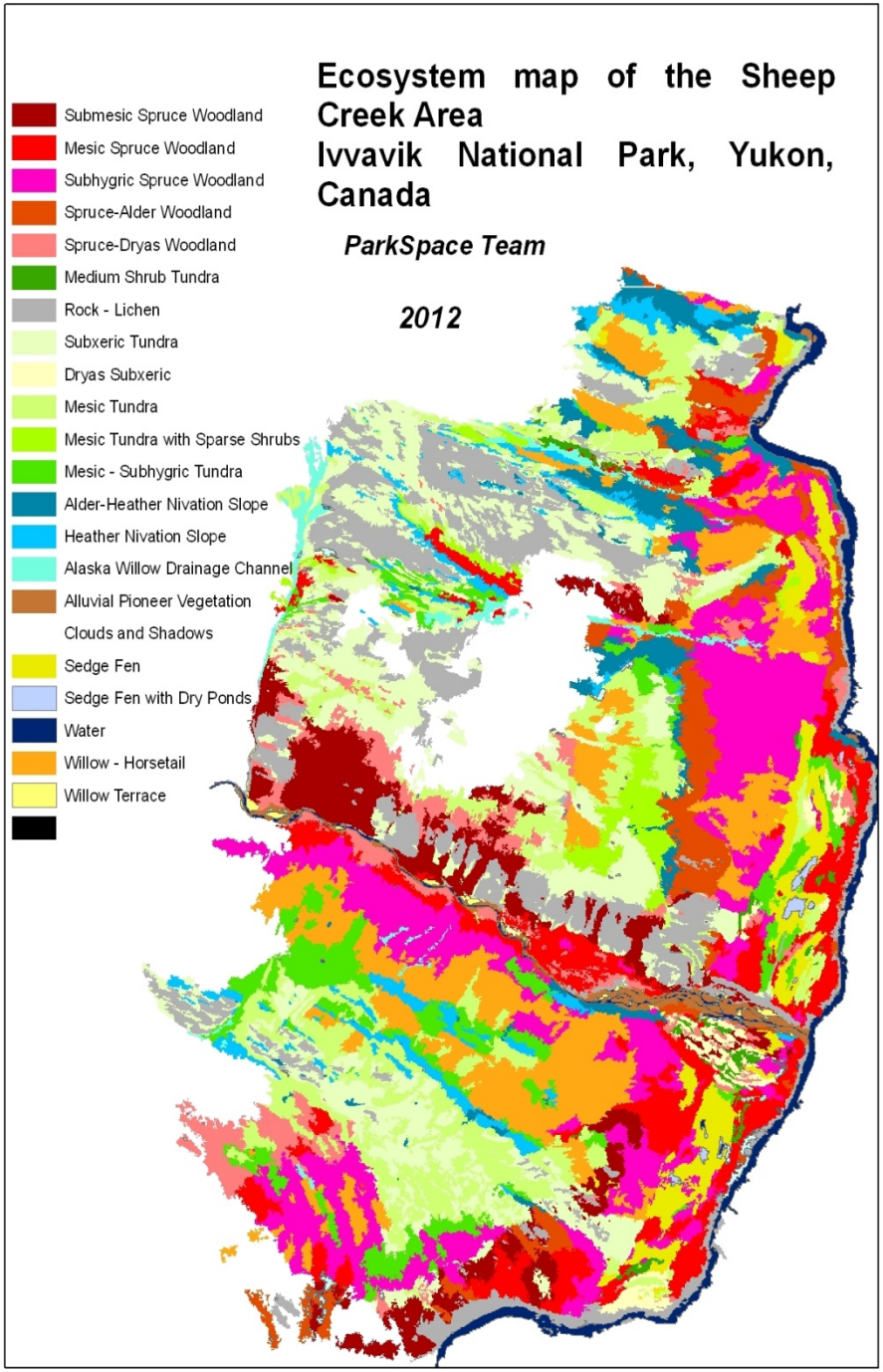




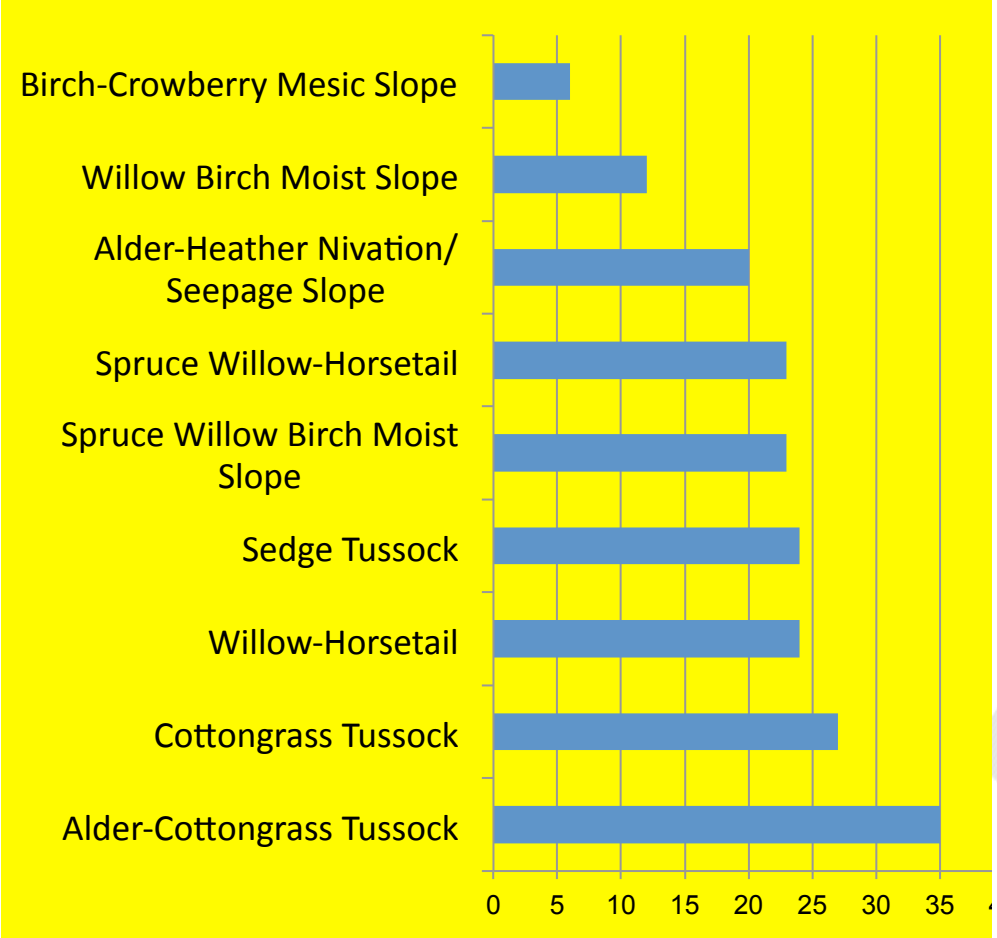


Maps the distribution of late- seral vegetation on zonal/normal sites


Ecosystem Model - Wapusk National Park
Nestor2
Nestor1
Coastal Fen
Mary Lake Met Station
Broad River Cabin
Owl River Cabin
Peat Plateau-Palsa Bog
Intertidal Zone
Roberge Lake Met Station
Subarctic Forest
Legend
Poor Sedge Fens
Rich Sedge Fens
Wet Sedge Fens
Sphagnum Bog or Fen
Low Shrub Fen
Riparian Tall Willow
Lichen Spruce Woodland
Lichen Low Shrub
Lichen Dwarf Shrub
Spruce Larch Forests
Larch Moss Fen
Coastal Fens
Coastal Low Willow
Coastal Tall Willow
Dry Dryas Heath
Moist Rhododendron-Dryas Heath
Goose Affected - Severe
Goose Affected - Mild
Moist forest - Burned
Mesic Forest - Burned
Mesic Forest - Severely Burned
Unvegetated
Water
Classification Accuracy = 87.74%
Kappa Coefficient = 87.02%

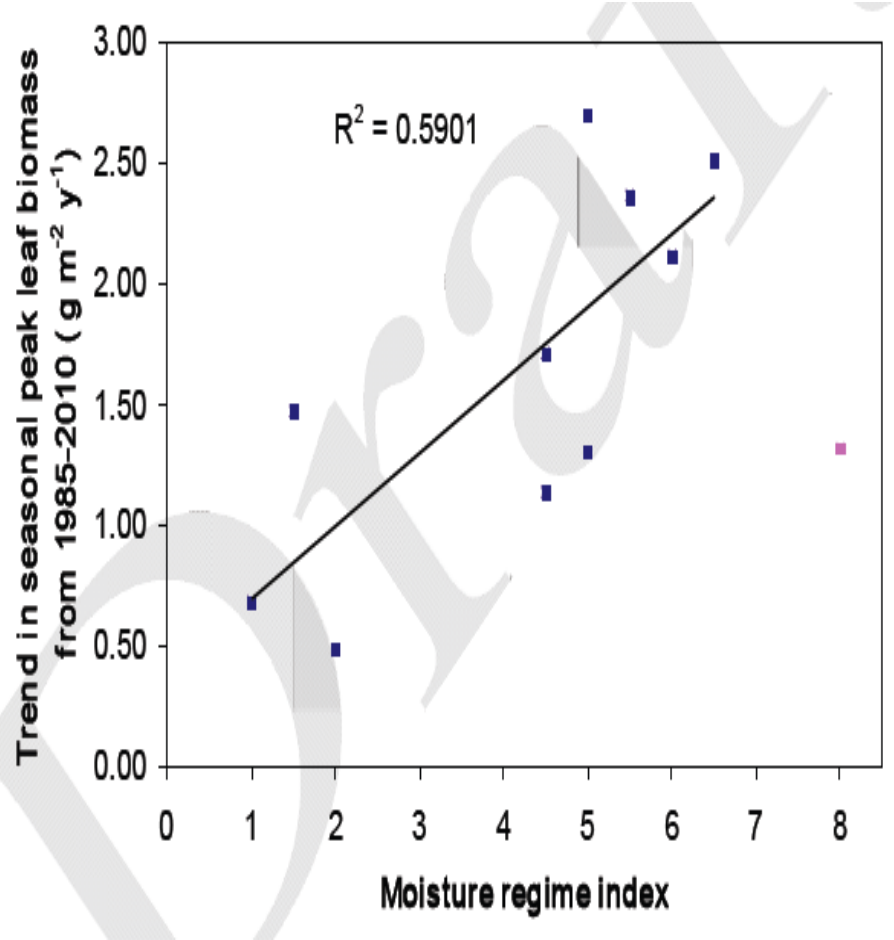

Ecosystem map of the Sheep Creek Area
Ivvavik National Park, Yukon, Canada
ParkSpace Team
2012
Submesic Spruce Woodland
Mesic Spruce Woodland
Subhygric Spruce Woodland
Spruce-Alder Woodland
Spruce-Dryas Woodland
Medium Shrub Tundra
Rock - Lichen
Subxeric Tundra
Dryas Subxeric
Mesic Tundra
Mesic Tundra with Sparse Shrubs
Mesic - Subhygric Tundra
Alder-Heather Nivation Slope
Heather Nivation Slope
Alaska Willow Drainage Channel
Alluvial Pioneer Vegetation
Clouds and Shadows
Sedge Fen
Sedge Fen with Dry Ponds
Water
Willow - Horsetail
Willow Terrace

Percent Shrub Increase by Ecotype



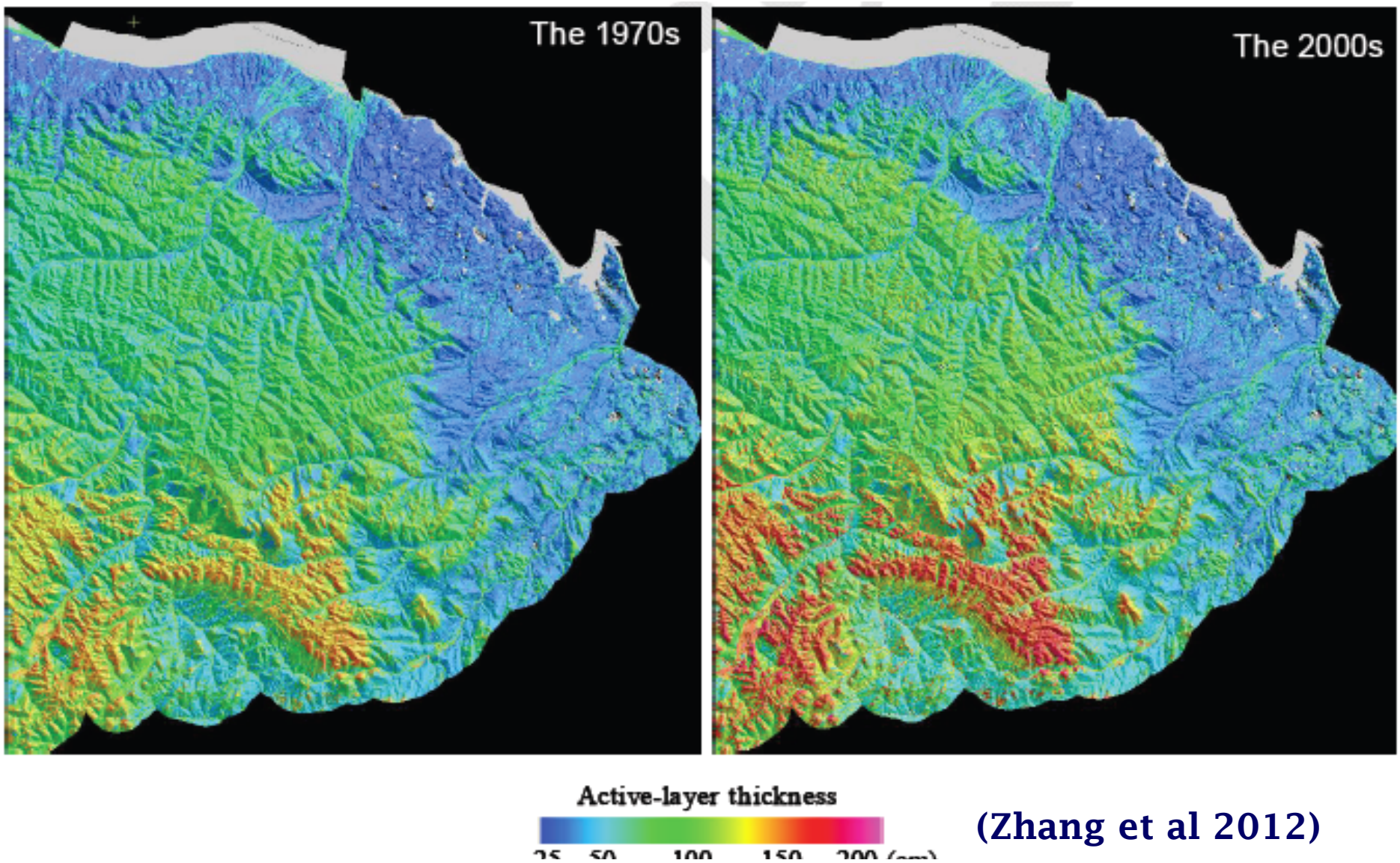
Biomass Increase and Moisture Regime Index

(Chen et al 2012)



Canada

Permafrost Change – Ivvavik NP



(Zhang et al 2012)

How to Support CNVC Arctic ?

Program Needs

- link CNVC Arctic to AVA, e.g., Turboveg tools, harmonization, meetings
- enter new plots - data entry – QA-QC
- periodic classification review/updates
- data management, dissemination
- communication, e.g., web site updating, Fact Sheets
- operational training