

Arctic Wildlife Observatories Linking Vulnerable EcoSystems (Arctic WOLVES)

Question: *What changes are occurring in the tundra food web of Yukon's North Slope ?*

Study Sites: **HERSCHEL ISLAND, KOMAKUK BEACH**

PLANTS (Isla Myers-Smith, Scott Gilbert, Dorothy Cooley, Catherine Kennedy, Jill Johnstone)

- Willows increasing in height (40% in 10 yrs) and cover (10-20% in 20 yrs)
- Lichens (caribou winter food) decreasing in abundance since 1980s
- High annual growth for arctic tundra – annual productivity increasing

INSECTS (Maria Leung, Don Reid, Scott Gilbert, Elise Bolduc)

- Very high abundance and diversity by arctic standards
- Butterfly species extending ranges north in last 30 yrs (see separate summary)

LEMMINGS (Charles Krebs, Alice Kenney, Scott Gilbert, Don Reid, Maria Leung, Liz Hofer)

- On mainland, brown lemmings & tundra voles stay at low densities (< 3 / ha)
- On Herschel I., lemmings fluctuate more in density (2 – 50 / ha)
- Lemming winter habitat improves with early snowfall and deeper snow

BIRDS (Frank Doyle, Alice Kenney, Don Reid, Scott Gilbert, Dave Mossop)

- Some nesting shorebird species increasing, others decreasing, in abundance
- Peregrine Falcons returned since 1980s, but nesting success compromised by nests falling off “cliffs” of melting permafrost (also true for rough-legged hawks)
- Shorebird and passerine bird egg laying is now earlier than 1980s by 2 to 8 days
- Herschel I. is key summer site in Yukon for Snowy Owls (nesting only in some years)

CARIBOU and MUSKOXEN (Don Reid, Dorothy Cooley, Lee-John Meyook)

- Densities of caribou (2.2/km²) and muskoxen 0.4/km²) on Herschel high for arctic
- Both species have become year-round residents on Herschel in recent decades
- Winter icing of snow cover, after thawing, can force caribou off the island
- Caribou may lose ability to overwinter with current declines in lichen abundance

ARCTIC and RED FOXES (Daniel Gallant, Brian Slough, Don Reid)

- Densities of both species quite low for southern arctic (probably reflects generally low lemming numbers)
- No change in relative abundance or rates of den occupancy between species in 40 yrs

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